HARCOURT

Math

Practice Workbook

PUPIL'S EDITION
Grade 6

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Name _____ LESSON 1.1

Estimate with Whole Numbers

Vocabulary

1. When both factors in a multiplication problem are rounded up to estimate the product, the estimate is an _____.

2. When all addends are about the same, you can use _____ to estimate their sum.

Estimate the sum or difference.

3. 2,489 1,601 +2,109	**4.** 398 415 +368	**5.** 4,723 +2,198	**6.** 7,132 6,594 +7,301	**7.** 5,401 +9,188
8. 478 − 26	**9.** 263 −211	**10.** 5,877 −5,318	**11.** 8,528 −6,491	**12.** 8,903 −4,575

Estimate the product or quotient.

13. 53 × 8	**14.** 76 × 9	**15.** 72 ×28	**16.** 47 ×53	**17.** 660 × 42
18. 371 × 78	**19.** 68 ×37	**20.** 480 ×192	**21.** 375 ×591	**22.** 824 ×693

23. 331 ÷ 5	**24.** 643 ÷ 9	**25.** 1,827 ÷ 59	**26.** 5,543 ÷ 77
_____	_____	_____	_____
27. 9,165 ÷ 28	**28.** 6,281 ÷ 875	**29.** 7,118 ÷ 614	**30.** 8,215 ÷ 897
_____	_____	_____	_____

Mixed Review

Round to the nearest 1,000.

31. 4,571	**32.** 8,445	**33.** 1,902	**34.** 6,679
_____	_____	_____	_____

Find the product.

35. 6 × 6 × 6	**36.** 3 × 3 × 3 × 3	**37.** 4 × 4 × 4 × 4
_____	_____	_____

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Name _____

Use Multiplication and Division

Multiply or divide. Estimate to check.

1. 46×12	**2.** 230×15	**3.** 417×40	**4.** $2{,}515 \times 52$	**5.** 387×66
6. 217×154	**7.** $6{,}903 \times 627$	**8.** 582×316	**9.** $6{,}148 \times 744$	**10.** $8{,}132 \times 915$
11. $4\overline{)96}$	**12.** $9\overline{)423}$	**13.** $19\overline{)361}$	**14.** $7\overline{)756}$	**15.** $32\overline{)450}$
16. $12\overline{)1{,}740}$	**17.** $19\overline{)912}$	**18.** $22\overline{)5{,}412}$	**19.** $31\overline{)4{,}836}$	**20.** $17\overline{)5{,}865}$

Divide. Write the remainder as a fraction.

21. $6\overline{)45}$	**22.** $14\overline{)550}$	**23.** $18\overline{)459}$	**24.** $41\overline{)13{,}210}$	**25.** $55\overline{)33{,}125}$

Mixed Review

Estimate the sum, difference, product, or quotient.

Solve by using addition and subtraction.

30. $9{,}271 - 3{,}587 - 1{,}266 - 2{,}650$ _____

31. $2{,}114 + 739 + 4{,}799 + 557 + 1{,}632$ _____

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Name _____ LESSON 1.4

Problem-Solving Strategy: Predict and Test

Solve by predicting and testing.

1. Ryan bought a total of 40 juice boxes. He bought 8 more boxes of apple juice than of grape juice. How many of each kind did he buy?

_____

2. The perimeter of a rectangular garden is 56 ft. The length is 4 ft more than the width. What are the dimensions of the garden?

_____

3. The Hawks soccer team played a total of 24 games. They won 6 more games than they lost, and they tied 2 games. How many games did they win?

_____

4. Rico collected a total of 47 rocks. He gathered 5 more jagged rocks than smooth rocks. How many of each kind of rock did he collect?

_____

5. Matt has earned $75. To buy a bicycle, he needs twice that amount plus $30. How much does the bicycle cost?

_____

6. The perimeter of a rectangular lot is 190 ft. The width of the lot is 15 ft more than the length. What are the dimensions of the lot?

_____

7. The Wolverines swimming team won a total of 15 first- and second-place medals at their last swim meet. If they won 7 more first-place medals than second-place medals, how many first-place medals did they win?

_____

8. Valley High School's football team played a total of 16 games. They won twice as many games as they lost. If they tied one game, how many games did the team win?

_____

Mixed Review

Find the product or quotient. Estimate to check.

9. 306×582 _____

10. $8{,}246 \div 38$ _____

11. $21{,}420 \div 51$ _____

Tell whether the estimate is an *overestimate* or *underestimate.* Then show how the estimate was determined.

12. $1{,}872 + 4{,}774 \approx 7{,}000$ _____

13. $321 \times 82 \approx 24{,}000$ _____

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Name _____

LESSON 1.5

Use Expressions

Vocabulary

Write the correct letter from Column 2.

Column 1	Column 2
_____ **1.** a mathematical phrase that includes only numbers and operation symbols	**a.** numerical expression
_____ **2.** an expression that includes a variable	**b.** variable
_____ **3.** a letter or symbol that stands for one or more numbers	**c.** algebraic expression

---

Write a numerical or algebraic expression for the word expression.

4. seven less than eleven

_____

5. six more than a number, x

_____

6. 8 multiplied by m

_____

7. 84 divided by 8

_____

Evaluate each expression.

8. 19×48

_____

9. $63b$, for $b = 15$

_____

10. $w + 178$, for $w = 226$

_____

11. $a \div b$, for $a = 253$ and $b = 11$

_____

12. $h + k - 84$, for $h = 46$ and $k = 73$

_____

13. $r(s)$, for $r = 109$ and $s = 33$

_____

Mixed Review

Multiply or divide.

14. $18\overline{)1{,}854}$

_____

15.
$$\begin{array}{r} 631 \\ \times\ 55 \\ \hline \end{array}$$

_____

16.
$$\begin{array}{r} 490 \\ \times\ 117 \\ \hline \end{array}$$

_____

17. $54\overline{)11{,}988}$

_____

18. Use the table at the right. If the pattern continues, how many laps in all will 8 swimmers swim on the fourth day?

_____

Each Swimmer's Training Schedule				
Day	1	2	3	4
Laps	6	8	10	□

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Name _____

LESSON 1.6

Mental Math and Equations

Determine which of the given values is a solution of the equation.

1. $4d = 28$; $d = 7$, 8, or 9 _____

2. $50 - t = 28$; $t = 20$, 21, or 22 _____

3. $42 \div n = 6$; $n = 5$, 6, or 7 _____

4. $72 + v = 85$; $v = 12$, 13, or 14 _____

5. $m + 7 = 18$; $m = 9$, 10, or 11 _____

6. $s - 17 = 10$; $s = 26$, 27, or 28 _____

7. $c \div 8 = 3$; $c = 22$, 23, or 24 _____

8. $155 = 5k$; $k = 30$, 31, or 32 _____

9. $8 = 25 - x$; $x = 17$, 18, or 19 _____

Solve each equation by using mental math.

10. $e + 6 = 20$ _____

11. $x \div 2 = 10$ _____

12. $6 \times h = 300$ _____

13. $s - 18 = 40$ _____

14. $92 = b + 7$ _____

15. $90 \div t = 15$ _____

16. $m - 150 = 420$ _____

17. $8 \times n = 72$ _____

18. $f - 6 = 98$ _____

19. $c \times 4 = 40$ _____

20. $63 = d \times 7$ _____

21. $k + 28 = 32$ _____

22. $9x = 180$ _____

23. $6 = v - 58$ _____

24. $w \div 9 = 12$ _____

25. $p + 62 = 100$ _____

Mixed Review

Find the sum or difference. Estimate to check.

26. $\begin{array}{r} 390 \\ +\ 789 \\ \hline \end{array}$

27. $\begin{array}{r} 9{,}056 \\ -\ 1{,}732 \\ \hline \end{array}$

28. $\begin{array}{r} 1{,}978 \\ +\ 693 \\ \hline \end{array}$

29. $\begin{array}{r} 47{,}813 \\ -\ 9{,}507 \\ \hline \end{array}$

30. $\begin{array}{r} 73{,}681 \\ +\ 50{,}342 \\ \hline \end{array}$

Evaluate each expression.

31. $n + 701$, for $n = 510$ _____

32. $50p$, for $p = 53$ _____

33. $r \times s$, for $r = 12$ and $s = 30$ _____

34. $h + g$, for $h = 65$ and $g = 41$ _____

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Name _____ LESSON 2.1

Use the Properties

Vocabulary

Write the correct letter from Column 2.

Column 1	Column 2
_____ **1.** Associative Property	**a.** $58 + 72 = (58 + 2) + (72 - 2)$
_____ **2.** Commutative Property	**b.** $3 \times (2 \times 4) = (3 \times 2) \times 4$
_____ **3.** compensation	**c.** $10 \times 23 = 23 \times 10$
_____ **4.** Distributive Property	**d.** $18x = 18$
_____ **5.** Identity Property of One	**e.** $6 \times 24 = 6 \times (20 + 4)$

Use mental math to find the value.

6. $37 + 14$ _____	**7.** $65 - 23$ _____	**8.** 18×6 _____
9. $258 \div 3$ _____	**10.** 18×22 _____	**11.** $141 \div 3$ _____
12. $78 - 45$ _____	**13.** $49 + 14$ _____	**14.** $41 + 18$ _____
15. 19×11 _____	**16.** $37 - 11$ _____	**17.** $366 \div 6$ _____
18. $320 \div 5$ _____	**19.** $59 + 26$ _____	**20.** $74 - 23$ _____
21. 15×51 _____	**22.** $88 - 54$ _____	**23.** 43×21 _____
24. $465 \div 15$ _____	**25.** $56 + 15$ _____	**26.** 15×48 _____
27. $32 + 35$ _____	**28.** $153 \div 9$ _____	**29.** $96 - 25$ _____
30. $37 + 14 + 43$ _____	**31.** $(7 \times 12) + (7 \times 18)$ _____	**32.** $5 \times 33 \times 6$ _____

Mixed Review

Evaluate each expression for $a = 72$, $b = 28$, and $c = 8$.

33. $b \times 7$	**34.** $a + b + 362$	**35.** $a \div c$	**36.** $225 - a$
_____	_____	_____	_____

Solve each equation using mental math.

37. $n \times 8 = 56$	**38.** $19 + w = 36$	**39.** $h \div 20 = 35$	**40.** $98 - x = 59$
_____	_____	_____	_____

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Name _____ LESSON 2.2

Exponents

Vocabulary

Complete using *exponent* or *base.*

1. A(n) _____ shows how many times a number called the _____ is used as a factor.

Write the equal factors. Then find the value.

2. 5^4 _____

3. 10^5 _____

4. 18^2 _____

5. 2^6 _____

6. 15^1 _____

7. 4^3 _____

Write in exponent form.

8. $1 \times 1 \times 1$ _____

9. $n \times n \times n \times n$ _____

10. $6 \times 6 \times 6 \times 6 \times 6$ _____

11. $10 \times 10 \times 10 \times 10$ _____

12. $y \times y$ _____

13. $4 \times 4 \times 4 \times 4 \times 4 \times 4$ _____

Express with an exponent and the given base.

14. 125, base 5 _____

15. 256, base 4 _____

16. 729, base 9 _____

17. 64, base 2 _____

18. 81, base 3 _____

19. 1,000,000, base 10 _____

Mixed Review

Use mental math to find the value.

20. $65 + 27$ _____

21. $20 \times 14 \times 5$ _____

22. $(9 \times 4) + (9 \times 6)$ _____

23. $84 - 45$ _____

24. $3 \times 3 \times 3 \times 3$ _____

25. 7^2 _____

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Name _____

LESSON 2.4

Order of Operations

Give the correct order of operations.

1. $100 + 6^2 - 9$

2. $(52 - 49)^2 \div 9$

3. $(5^2 + 1) \div 2$

4. $(9 + 2) \times (16 - 12)^2$

Evaluate the expression.

5. $27 \div 3 + 1$

6. $(6 + 8) \times (9 - 8)$

7. $(6 + 7^2) \div 5 \times 2$

8. $(12 \div 2)^3 + (2^3 + 1^3)$

9. $(15 - 5)^2 - (4 \times 3)$

10. $(57 + 3) \times 2^4$

11. $(19 + 9) \div (2^3 - 1) + 20$

12. $(3 \times 7^2) - (5^3 - 9^2) + 10^2$

13. $3 \times (10^2 - 65) + (5^2 \times 2)$

Evaluate the expression for $s = 5$ and $t = 12$.

14. $50 \div s + 7$

15. $s^2 + 150$

16. $2 \times t - 18$

17. $t^2 - 3 \times 8$

18. $15 + t \div 6$

19. $27 + 9 \times s$

Mixed Review

Use mental math to find the value.

20. 12×7

21. $37 + 62$

22. $434 \div 7$

23. $1{,}731 - 605$

Write in exponent form.

24. $8 \times 8 \times 8 \times 8$

25. $6 \times 6 \times 6 \times 6 \times 6$

26. $n \times n \times n \times n \times n$

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Name _____ LESSON 2.5

Problem-Solving Skill

Sequence and Prioritize the Information

Tiffany and her dad need to make brownies for the PTA bake sale. They need to deliver the brownies to the school by 1 P.M. To plan their morning, they made a list of the things they need to do, including a time estimate for each task.

To Do List
- Bake brownies, 20 minutes.
- Let brownies cool, 20 minutes.
- Grocery shopping, buy brownie ingredients, 1 hour.
- Drive to the school, 10 minutes.
- Mix brownies, 30 minutes.
- Wrap brownies separately in plastic wrap, 15 minutes.

1. List the items in the To Do List in an order that makes sense.

_____

_____

_____

2. Can they get everything done if they begin at noon? Explain

_____

_____

Alex has several things to do on Saturday.

Saturday Activities
- Attend birthday party at 4 P.M.
- Buy gift—either a CD for $16 or a computer game for $25.
- Get haircut at 2 P.M.; cost $9.
- Before 10 A.M., mow Mrs Brown's lawn; earn $15.
- Mow Mr. Tanaka's lawn after 10:00 A.M. earn $15. Trim hedge, earn $10.
- Set aside $5 for savings.
- Keep $5 for spending money.

3. List his activities in an order that makes sense.

_____

_____

_____

_____

_____

4. Which gift can Alex buy? Why? Assume he has no spending money left from last week.

_____

Mixed Review

Evaluate each expression.

5. $t \times 7$, for $t = 25$ _____

6. $150 - h$, for $h = 88$ _____

7. $96 \div r$, for $r = 2$ _____

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Name _____

LESSON 3.1

Represent, Compare, and Order Decimals

Write the value of the underlined digit.

1. 485.03$\underline{6}$ _____

2. 16,005.8$\underline{4}$5 _____

3. 8,492.$\underline{7}$792 _____

Write the number in expanded form.

4. 5.71 _____

5. 85.083 _____

6. 0.4625 _____

7. 17.00157 _____

Compare the numbers. Write $<$, $>$, or $=$ for ○.

8. 15.4 ○ 14.5 _____

9. 5.67 ○ 5.76 _____

10. 43.90 ○ 43.9 _____

11. 7.91 ○ 9.17 _____

12. 765.28 ○ 762.58 _____

13. 0.234 ○ 2.304 _____

Write the numbers in order from least to greatest.

14. 3,224; 2,432; 3,422 _____

15. 88.5; 85.8; 58.8 _____

16. 6.21; 6.02; 6.12 _____

Write the numbers in order from greatest to least

17. 0.005; 0.500; 0.050 _____

18. 317.8; 318.7; 371.8 _____

19. 16.04; 14.6; 16.4 _____

Mixed Review

Evaluate each expression.

20. $4 + 3^3 \times 2 - (6 - 1)$ _____

21. $(11 + 16) \div 3 + (4 - 2)^2$ _____

22. $45 + (6^2 - 11) \times 2$ _____

Solve each equation using mental math.

23. $m - 7 = 36$ _____

24. $9x = 63$ _____

25. $a \div 6 = 14$ _____

Evaluate each expression for $a = 6$, $b = 120$, and $c = 54$.

26. $b + 295$ _____

27. $93 - c$ _____

28. $b \div a$ _____

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Name _____

LESSON 3.2

Problem Solving Strategy: Make a Table

Solve the problem by making a table.

1. Earthquakes are measured using the Richter scale. The greater the number, the greater the strength (or magnitude). Some of the strongest earthquakes during the twentieth century had magnitudes of 7.2, 8.9, 8.4, 8.7, 8.3, 8.6, 7.7, and 8.1. The San Francisco earthquake of 1906 had the fifth highest magnitude of those given above. What was its magnitude on the Richter scale?

_____

2. Late in 1999, one U.S. dollar was worth the following amounts in five other countries' money.

Australian dollar	1.5798
Brazilian real	1.8780
Canadian dollar	1.4796
German mark	1.9524
Swiss franc	1.5919

In which country could one U.S. dollar be exchanged for the greatest amount of that country's money?

_____

3. Danny is doing research on animals at the library. He has spent 25 minutes reading about insects. He thinks he will need the same amount of time for each of 5 other types of animals. If he began at 9:45 A.M., at what time would he finish?

_____

4. A theater is showing two films. The starting times for the first film are every even hour, beginning at noon. The starting times for the second film are every odd hour, beginning at 1:00 P.M. If the last show begins at 10:00 P.M., how many times are both films shown?

_____

Use the table at the right for 5 and 6. The data shows the amount of energy in quadrillion BTUs.

Country	Energy Produced	Energy Used
United States	66.68	82.19
Great Britain	9.23	9.68
China	30.18	29.22
Canada	14.36	10.97
India	6.94	8.51
Russia	45.66	32.72

5. In which country is the difference between the amount of energy produced and amount used the greatest?

_____

6. In which country is the difference between the amount of energy produced and amount used the least? _____

Mixed Review

Add or subtract mentally.

7. $67 + 83 + 33$ _____

8. $449 - 398$ _____

9. $203 + 178 + 22$ _____

Tell which operation you would do first.

10. $8 - 5 + 7$ _____

11. $16 + 4 \div 2$ _____

12. $(10 + 4) \times 2$ _____

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LESSON 3.3

Estimate with Decimals

Estimate.

1. $3.8 + 7.9$ _____

2. 7.1×6.2 _____

3. $23.18 - 19.09$ _____

4. $12.2 \div 5.9$ _____

5. 4.09×6.18 _____

6. $83.89 + 17.66$ _____

7. $162.3 \div 15.7$ _____

8. $31.6 - 8.82$ _____

9. $7.7 + 118.2$ _____

10. $101.2 - 34.9$ _____

11. $\$35.99 - \$6.02$ _____

12. 19.8×21.3 _____

13. $\$124.66 \times 3$ _____

14. $10.6 + 19.01$ _____

15. 81.3×9.6 _____

16. $810.1 - 69.9$ _____

17. $602.5 + 87.3$ _____

18. 397.9×21 _____

19. $502.03 \div 4.9$ _____

20. $\$88.20 + \$79.10$ _____

21. $1.8 + 2.9 + 11.8$ _____

22. $\$203.99 \div 21$ _____

23. $\$199.50 - \$53.99$ _____

24. 8.8×7.1 _____

25. $67.2 + 11.9 + 107.44$ _____

26. $889.52 - 402.68$ _____

Mixed Review

Write in exponent form.

27. $4 \times 4 \times 4$ _____

28. $2 \times 2 \times 2 \times 2$ _____

29. 6×6 _____

30. $1 \times 1 \times 1 \times 1 \times 1$ _____

31. $7 \times 7 \times 7 \times 7$ _____

32. $8 \times 8 \times 8$ _____

33. $9 \times 9 \times 9$ _____

34. $3 \times 3 \times 3 \times 3$ _____

Find the value.

35. 5^2 _____

36. 2^5 _____

37 8^2 _____

38. 1^4 _____

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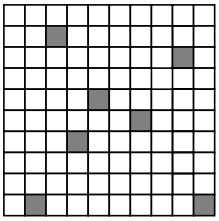
Name _____

LESSON 3.4

Decimals and Percents

Write the decimal and percent for the shaded part.

1. 

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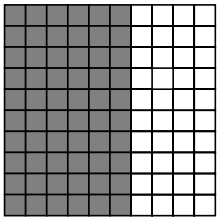
2. 

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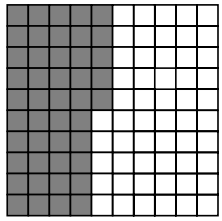
3. 

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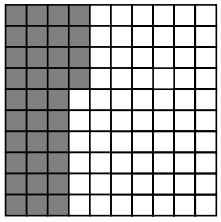
4. 

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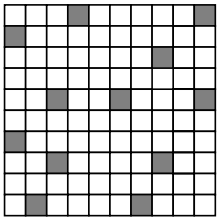
5. 

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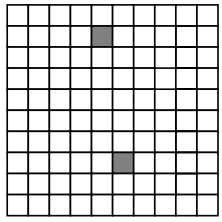
6. 

_____

Write the percent or decimal.

7. 67% _____

8. 0.15 _____

9. 0.92 _____

10. 11% _____

11. 80% _____

12. 0.3 _____

13. 64% _____

14. 88% _____

15. 0.14 _____

16. 90% _____

17. 0.09 _____

18. 34% _____

19. 0.75 _____

20. 6% _____

21. 0.19 _____

Mixed Review

Evaluate the expression.

22. $6 + 3 \times 2$ _____

23. $10 \div 2 - 1$ _____

24. $16 - 4 \times 2$ _____

25. $20 \times 2 + 1$ _____

26. $(8 - 2) \times 3$ _____

27. $15 \div 3 + 2$ _____

28. $32 + 8 \div 2$ _____

29. $20 + (6 \times 2)$ _____

30. $45 \div (4 + 5)$ _____

31. $(16 - 7)^2 \div 3$ _____

32. $6^2 + 14 \div 2$ _____

33. $12 \times (9 - 4)$ _____

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Name _____

LESSON 4.1

Add and Subtract Decimals

Add or subtract. Estimate to check.

1. 0.34 + 8.19 _____

2. 6.92 + 3.55 _____

3. 0.418 + 1.291 _____

4. 8.93 + 2.68 _____

5. 8.7 − 4.2 _____

6. 13.29 − 5.96 _____

7. 5.41 − 1.36 _____

8. 15.93 − 7.08 _____

9. 9.328 + 1.294 _____

10. 5.962 − 1.748 _____

11. 4.036 − 2.751 _____

12. 4.89 + 12.45 _____

13. 8.116 − 3.094 _____

14. 23.4 − 12.379 _____

15. 20.68 + 7.12 _____

16. 1.681 + 2.899 _____

17. 41.783 − 29.822 _____

18. 21.35 + 37.7 + 12.816 _____

19. $245.62 − $109.99 _____

20. 41.6 + 27.56 + 16.942 _____

21. 452.803 − 376.991 _____

22. 111.22 + 77.5 + 83.947 _____

23.
$$\begin{array}{r} 446.09 \\ 811.36 \\ +\ 73.52 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 8.71 \\ 13.99 \\ +\ 67.2 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 89.01 \\ -\ 67.56 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 25.8 \\ -\ 17.226 \\ \hline \end{array}$$

Mixed Review

Write the numbers in order from greatest to least.

31. 21.10; 21.050; 21.8 _____

32. 36.63; 36.33; 36.36 _____

33. 5.912; 5.921; 5.192 _____

Write the percent or decimal.

34. 0.98 _____

35. 73% _____

36. 44% _____

37. 0.06 _____

38. 90% _____

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Name _____

LESSON 4.2

Multiply Decimals

Tell the number of decimal places there will be in the product.

1. 6.3×0.75 _____

2. 9.7×48.8 _____

3. 5.96×62.15 _____

4. 37.6×8.3 _____

5. 32.08×7.3 _____

6. 428.9×5.6 _____

7. 897.3×5.3 _____

8. 186.472×9.6 _____

Place the decimal point in the product.

9. $6.17 \times 8.2 = 50594$ _____

10. $24.01 \times 8.51 = 2043251$ _____

11. $8.94 \times 5.27 = 471138$ _____

12. $8.04 \times 1.7 = 13668$ _____

13. $19.6 \times 5.8 = 11368$ _____

14. $30.7 \times 8.33 = 255731$ _____

Multiply. Estimate to check.

15. 5×0.9 _____

16. 9×1.2 _____

17. 4×3.47 _____

18. $\$18.93 \times 7$ _____

19. 5.55×9 _____

20. 5×2.89 _____

21. 31.82×4 _____

22. 4.61×8 _____

23. 2.49×6 _____

24. 35.98×6.3 _____

25. 73.02×9.1 _____

26. 8.5×16.03 _____

27. 3.91×6.22 _____

28. 164.5×0.03 _____

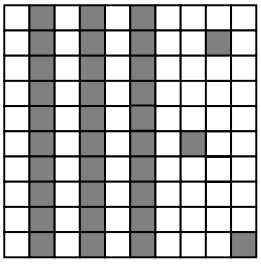
29. 28.14×1.52 _____

30. 6.114×3.72 _____

Mixed Review

Write the decimal and the percent for the shaded part.

31.



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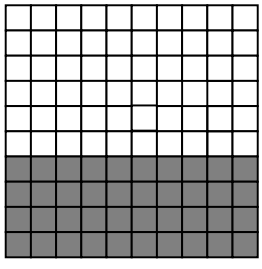
32.



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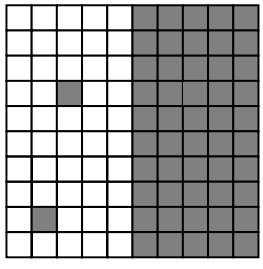

_____

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Name _____

LESSON 4.4

Divide with Decimals

Rewrite the problem so that the divisor is a whole number.

1. $8.5 \div 2.3$ _____

2. $6.4 \div 1.3$ _____

3. $9.1 \div 0.15$ _____

4. $33.17 \div 6.8$ _____

Place the decimal point in the quotient.

5. $7.48 \div 0.25 = 2992$ _____

6. $116.13 \div 4.2 = 2765$ _____

7. $56.68 \div 0.08 = 7085$ _____

Divide. Estimate to check.

8. $36.9 \div 3$ _____

9. $22.4 \div 7$ _____

10. $37.5 \div 5$ _____

11. $89.6 \div 8$ _____

12. $14\overline{)78.4}$

13. $40\overline{)6.8}$

14. $13\overline{)150.8}$

15. $70\overline{)23.8}$

16. $5.32 \div 0.7$

17. $1.88 \div 0.4$

18. $2.12 \div 0.2$

19. $5.4 \div 0.08$

20. $7.54\overline{)24.882}$

21. $12.6\overline{)806.4}$

22. $0.91\overline{)6.734}$

23. $10.9\overline{)81.75}$

24. $2.9\overline{)0.3335}$

25. $0.18\overline{)64.296}$

26. $12.3\overline{)84.87}$

27. $8.7\overline{)53.244}$

Mixed Review

Add, subtract, or multiply.

28.
$$\begin{array}{r} 78.94 \\ 9.66 \\ +\ 103.71 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 1{,}083.75 \\ -\ \ 706.9 \\ \hline \end{array}$$

30.
$$\begin{array}{r} 0.072 \\ \times\ 0.48 \\ \hline \end{array}$$

31. $215.6 + 49.87 + 8.351$ _____

32. 42.83×1.91 _____

33. $65.85 - 39.478$ _____

34. $430.62 - 288.74$ _____

35. $192.6 + 847.56$ _____

36. 17.335×8.26 _____

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Name _____

LESSON 4.5

Problem-Solving Skill: Interpret the Remainder

Solve the problem by interpreting the remainder.

1. Thirty-seven people are attending a party at a restaurant. In the banquet room, the restaurant staff has set up tables that can each seat 8 people. What is the least number of tables that the group will use?

_____

2. There are 23 pancakes on the griddle at a restaurant. The chef places 4 pancakes on each order. How many orders can the chef fill, and how many pancakes must be added to those remaining to make another order?

_____

3. A library reading room contains a number of tables that can seat 4 people. What is the least number of tables needed to seat 54 people?

_____

4. A group of 5 friends wants to buy snacks. If each snack costs $0.75 and they have a total of $4.80 to spend, how many snacks can they buy?

_____

5. The chef at a restaurant uses 3 eggs to make each omelet. If the chef has 200 eggs, how many 3-egg omelets can he make?

_____

6. A total of 125 hamburgers were sold at a fund-raiser at the last football game. If the hamburger patties came in packages of 8, how many packages were opened?

_____

Mixed Review

Estimate the sum or difference.

7. $\begin{array}{r} 671 \\ +902 \\ \hline \end{array}$

8. $\begin{array}{r} 478 \\ -310 \\ \hline \end{array}$

9. $\begin{array}{r} 831 \\ -289 \\ \hline \end{array}$

10. $\begin{array}{r} 1{,}226 \\ +533 \\ \hline \end{array}$

11. $\begin{array}{r} 661 \\ +2{,}403 \\ \hline \end{array}$

12. $\begin{array}{r} 1{,}729 \\ -494 \\ \hline \end{array}$

13. $\begin{array}{r} 488 \\ -391 \\ \hline \end{array}$

14. $\begin{array}{r} 2{,}994 \\ +1{,}258 \\ \hline \end{array}$

Solve each equation by using mental math.

15. $m + 12 = 15$

16. $5 \times w = 20$

17. $x - 7 = 8$

18. $q + 4 = 10 + 6$

19. $6 \times r = 24$

20. $y - 9 = 10$

21. $a - 2 = 8 + 6$

22. $d + 3 = 21 - 7$

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Name _____

LESSON 4.6

Decimal Expressions and Equations

Evaluate each expression.

1. $t - 1.2$ for $t = 3$ _____

2. $y + 4.6$ for $y = 2.4$ _____

3. $8.2 - m$ for $m = 1.1$ _____

4. $2.4 \div a$ for $a = 6$ _____

5. $6g$ for $g = 1.5$ _____

6. $j - 6.3$ for $j = 9.6$ _____

7. $12.6 + r$ for $r = 4.4$ _____

8. $4.5 \div p$ for $p = 9$ _____

9. $7.24 - q$ for $q = 1.04$ _____

10. $6.18 \div y$ for $y = 3$ _____

11. $t + 4.66$ for $t = 2.1$ _____

12. $5h$ for h $= 2.4$ _____

Solve each equation by using mental math.

13. $w + 4.5 = 8$ _____

14. $\frac{k}{3} = 2.5$ _____

15. $1.4 = \frac{t}{2}$ _____

16. $m - 7.6 = 2.4$ _____

17. $3a = 6.9$ _____

18. $9c = 22.5$ _____

19. $3b = 6.4 + 2.6$ _____

20. $w + 10.3 = 21.7$ _____

21. $13.7 = d - 3.4$ _____

22. $4.8 = \frac{n}{4}$ _____

23 $\frac{x}{5} = 19.5$ _____

24. $7h = 15.4$ _____

Mixed Review

Estimate.

25. $6.9 + 7.8$ _____

26. 31.77×6 _____

27. $63.85 \div 8$ _____

28. $17.04 - 9.8$ _____

29. $18.58 + 21.44$ _____

30. 91.92×4 _____

31. $54.3 - 19.7$ _____

32. $80.8 \div 9.2$ _____

Find the quotient.

33. $88.8 \div 6$ _____

34. $59.4 \div 36$ _____

35. $38.88 \div 7.2$ _____

36. $31.108 \div 2.2$ _____

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Name _____ LESSON 5.1

Samples

Determine the type of sample. Write *convenience, random,* or *systematic*.

1. An assembly-line worker randomly selected one microwave oven and then checked every fifteenth oven to see whether it worked.

_____

2. Carl selected students to complete a survey by assigning each student's name a number from 1 to 6, rolling a cube numbered 1 to 6, and choosing each student whose name had the number he rolled.

_____

3. A store manager asked the first 50 shoppers to enter her store on Saturday to complete a survey about changes they would like to see made at the store.

_____

Tell whether you would survey the population or use a sample. Explain.

4. You want to know the type of computer, if any, that each student in your class has at home.

_____

_____

5. You want to know the average number of siblings of all sixth grade students in your school district.

_____

_____

6. You want to know your friends' favorite television.

_____

_____

Mixed Review

Evaluate each expression.

7. $9.03 \div x$ for $x = 3$ _____

8. $7m$ for $m = 2.2$ _____

9. $4.5 - w$ for $w = 1.9$ _____

10. $17.4 + h$ for $h = 5.9$ _____

11. $k \div 2$ for $k = 6.4$ _____

12. $6.58 + a$ for $a = 0.45$ _____

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Name _____ LESSON 5.2

Bias in Surveys

Vocabulary

Complete.

1. A sample is _____ if individuals in the population are not represented in the sample.

Tell whether the sampling method is *biased* or *unbiased.* Explain.

The Tri-State Soccer League is conducting a survey to determine if the players want to change the style of soccer shirt.

2. Randomly survey all players who wear size large shirts.

3. Randomly survey all members of championship teams.

4. Randomly survey 80 players.

5. Randomly survey all league coaches.

Determine whether the question is biased. Write *biased* or *unbiased.*

6. Do you feel that country music is better than all other types of music?

7. What type of team sport do you enjoy playing?

Mixed Review

Solve each equation by using mental math.

8. $w - 7.5 = 12.3$

9. $5x = 16.5$

10. $a + 6.9 = 14.3$

Find the quotient.

11. $22.78 \div 6.7$

12. $49.6 \div 8$

13. $20.37 \div 3.5$

Solve .

14. Kyle rode his bicycle a total of 48 kilometers at a rate of 8 kilometers per hour. How long did he ride?

15. Joanne earns $24.50 per hour as a construction worker. How much does she earn if she works 7.5 hours?

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Name _____ LESSON 5.3

Problem Solving Strategy: Make a Table

Solve the problem by displaying the data in a table.

During the basketball season, the Falcons scored the following numbers of points in their games: 63, 52, 47, 51, 60, 49, 48, 54, 71, 52, 40, 38, 57, 46, 44, 63, 70

1. How many rows of data are in your table?

_____

2. How many scores are greater than 40 but less than 61?

_____

3. The Falcons won every game in which they scored more than 60 points. How many games did they play in which they scored more than 60 points?

_____

4. The team lost every game in which they did not score more than 40 points. How many games did they play in which they did not score more than 40 points?

_____

5. The Falcons' record for the season was 11 wins and 7 losses. How many games did they win in which they scored 60 points or fewer?

_____

6. With a record of 11 wins and 7 losses, how many games did the Falcoms lose when they scored more than 40 points?

_____

Solve.

7. Dennis has 5 friends and wants to invite 2 of them to go to a baseball game with him and his family. How many different choices of 2 friends can Dennis make?

_____

8. Latifah has a project that is due on May 15. She expects the project to take her 3 weeks to complete. What is the latest date on which she could begin her project in order to be done on time?

_____

Mixed Review

Write the percent or decimal.

9. 16% _____ **10.** 5% _____ **11.** 0.55 _____ **12.** 0.83 _____ **13.** 0.07 _____

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Name _____

LESSON 5.4

Frequency Tables and Line Plots

Vocabulary

1. A running total of the number of people surveyed is called a _____.

2. A _____ shows the total for each category or group in a set of data.

For 3–4, use the data in the chart at the right.

3. Find the range. _____

4. Make a line plot

Students' Heights (cm)					
160	137	158	155	136	154
154	159	142	147	148	144
152	133	135	136	162	158
139	160	154	139	159	144
155	147	136	148	162	133

For 5–6, use the chart at the right.

5. Find the range. _____

6. Make a line plot

Reading Test Scores				
98	100	81	92	78
75	96	78	84	100
82	100	100	86	78

Mixed Review

Compare the numbers. Write $>$, $<$, or $=$ for ○.

7. 31.7 ○ 37.1 _____

8. 72.67 ○ 72.670 _____

9. 66.61 ○ 66.16 _____

Solve. Use the information in the table.

10. Estimate the combined population of the four cities. _____

11. How many more people lived in Billings than in Missoula. _____

Population of the Four Largest Cities in Montana in 1999

City	Population
Billings	91,195
Great Falls	57,758
Missoula	51,204
Butte-Silver Bow	34,051

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Name _____ LESSON 5.5

Measures of Central Tendency

Vocabulary

Write the correct letter from Column 2.

Column 1	Column 2
_____ 1. mean	a. number that appears most often in a group of numbers
_____ 2. median	b. sum of a group of numbers divided by the number of addends
_____ 3. mode	c. middle number in a group of numbers arranged numerically

---

Complete the table.

	Data	Mean	Median	Mode
4.	12, 15, 11, 15, 13, 10, 15			
5.	68, 74, 71, 69, 74, 78, 70			
6.	7.6, 6.2, 6.0, 6.2, 8.1, 6.7			
7.	168, 212, 146, 195, 200, 156			

For 8–10, use the table below.

Test	1	2	3	4	5	6
Score	91	84	96	89	93	84

8. Find the mean. _____

9. Find the median. _____

10. Find the mode. _____

Test Scores									
98	88	82	91	83	76	98	100	84	90

11. Use the data above to make a line plot. Use your line plot to find the median and mode.

Mixed Review

Write the numbers in order from least to greatest.

12. 218.4, 284.1, 241.8, 214.8 _____

13. 6.17, 6.71, 6.107, 6.701 _____

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Name _____

LESSON 5.6

Outliers and Additional Data

Use the following data for 1–2.

The first 6 packages that were checked in at an airline ticket counter when it opened for business weighed 15 pounds, 21 pounds, 19 pounds, 14 pounds, 18 pounds, and 15 pounds.

1. Find the mean, median, and mode of the weights of the first 6 packages that were checked in at the counter.

_____

2. The next package checked in weighed 66 pounds. Find the mean, median, and mode of the weights of the 7 packages.

_____

3. Some friends in the school chorus compared the number of siblings they had. Two had 3 siblings, three had 2 siblings, 6 had one sibling, and 1 had no siblings. What were the mean, median, and mode number of siblings for the group of friends?

_____

4. Refer to Exercise 3. Suppose another student who has 9 siblings joins the discussion. Of the three measures of central tendency (mean, median, and mode), which measure is affected the most by including the new data value of 9 siblings?

_____

Use the following data for 5–6.

A survey of stores found the following prices for a popular type of backpack: $17, $19, $21, $21, $20, $18, and $24.

5. What were the mean, median, and mode of the prices for the backpack that were found during the survey?

_____

6. One of the stores charging $21 reduced its price to $14 for one day. What are the new mean, median, and mode?

_____

Mixed Review

Add or subtract.

7. $\begin{array}{r} 6.8 \\ +\ 7.9 \\ \hline \end{array}$

8. $\begin{array}{r} 7.03 \\ +\ 3.89 \\ \hline \end{array}$

9. $\begin{array}{r} 15.4 \\ -\ 6.7 \\ \hline \end{array}$

10. $\begin{array}{r} 45.04 \\ -\ 27.5 \\ \hline \end{array}$

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Estimate.

15. 19.8×6.3

_____

16. $51.2 - 19.9$

_____

17. $8.9 + 24.2 + 16.7$

_____

Name _____ LESSON 5.7

Data and Conclusions

Write *yes* or *no* to tell whether the conclusion is valid.
Explain your answer.

1. A random sample of 100 middle school students were asked whether they think speed limits should be increased. Almost all of them believed that they should be. You conclude that drivers in general want higher speed limits.

_____

_____

2. At the music store where you buy CDs, the most popular type of music is rhythm and blues. You tell your friends that rhythm and blues must be the most popular type of music in the country.

_____

_____

3. Your teacher tells you that in your class of 24 students, there are 2 student birthdays each month. You decide that in the entire school, student birthdays are distributed evenly throughout the year.

_____

_____

_____

4. You ask the first 60 students in line at the student cafeteria how they come to school. All but 15 students say they ride a school bus. You conclude that most students come to school by bus.

_____

_____

Mixed Review

Find the value.

5. $5 + 5 \times 4$ _____
6. $6 + (4 \times 3)$ _____
7. $20 \div 2 + 8$ _____
8. $(14 - 6) \times 2$ _____
9. $35 \div (15 - 8)$ _____
10. $10 + (8 \times 3)$ _____

Find the mean, median, and mode.

11. 412, 387, 297, 343 _____
12. 11, 14, 19, 14, 17, 16, 7 _____
13. 6.7, 6.7, 7.6, 4.2, 7.6 _____

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Name _____ LESSON 6.1

Make and Analyze Graphs

Tell if you would use a bar, line, or circle graph to display the data.

1. The amount of time you spend in your classes in one day.

_____

2. The amount of money you spend in two weeks.

_____

3. The number of students who play different musical instruments.

_____

4. The weights of 8 different pets.

_____

5. Make a multiple-bar graph of the homework data below.

Hours Spent Doing Homework

Name	Science	Math
Nigel	2.5 hr	0.5 hr
Marty	1 hr	1.5 hr
Julie	0.75 hr	2 hr
Luis	1.25 hr	1 hr

6. Make a multiple-line graph of the temperature data below.

Average Low Temperature

Year	Jan	Feb	Mar
1998	$^{-}4°F$	5°F	8°F
1999	6°F	3°F	12°F
2000	$^{-}10°F$	9°F	16°F
2001	12°F	$^{-}5°F$	14°F

7. Gretchen researched the number of new students who came to her school during 5 months of the school years 2000 and 2001. Her data are shown at the right. What kind of graph would you use to display the data? Explain.

Number of New Students

	Sept	Oct	Jan	Feb	Mar
2000	35	12	10	6	9
2001	5	23	14	0	12

_____

Mixed Review

Estimate.

8. $71.3 + 68.6 + 69.7$

9. $284.17 \div 7.24$

10. 979.88×31.05

_____ _____ _____

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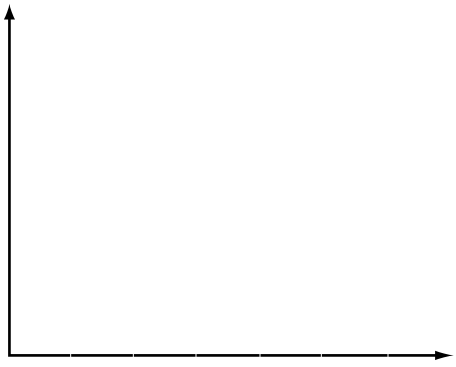
Name _____ LESSON 6.2

Find Unknown Values

Sarina kept a record of her after-school earnings.

Number of Weeks Worked	1	2	3	4
Total Saved	$14	$28	$42	$56



1. Use the data in the table to make a line graph. Use the line graph to estimate how much Sarina will have saved after working for 5 weeks.

_____

2. Use logical reasoning and arithmetic to find how much Sarina will have saved after working for 5 weeks. _____

3. Use the line graph to estimate how many weeks Sarina will need to work in order to save $98. _____

4. Use logical reasoning and arithmetic to find how many weeks Sarina will have to work to save $98. _____

A train averages 60 mi per hr while traveling between New York City and Chicago.

Time (hr)	1	2	3	4
Distance (mi)	60	120	180	240

5. Use the data in the table to make a line graph. Use the line graph to estimate how long it will take the train to travel 360 mi.

_____

6. Use logical reasoning and arithmetic to find how long it will take the train to travel 360 mi. _____

7. Use the formula $d = rt$ to find how long it will take the train to travel 480 mi. _____

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Mixed Review

Use mental math to find the value.

8. $59 + 16$ _____ 9. $63 - 21$ _____ 10. $89 - 54$ _____

Compare the numbers. Write $<$, $>$, or $=$.

11. $0.547 \bigcirc 0.574$ _____ 12. $3.61 \bigcirc 3.16$ _____ 13. $68.90 \bigcirc 68.9$ _____

Name _____ LESSON 6.3

Stem-and-Leaf Plots and Histograms

Tell whether a bar graph or a histogram is more appropriate.

1. frequency of fish caught at different times of day

_____

2. average monthly telephone bill for a year

_____

3. number of shoppers in a store during 3 different time intervals

_____

Make a stem-and-leaf plot of each set of data.

4. Janet's math test scores:
95, 83, 78, 91, 75, 85, 91, 98, 80

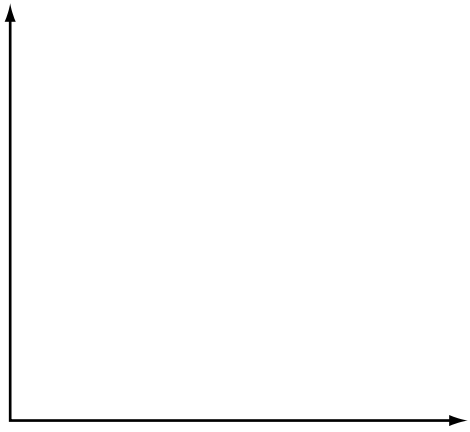
5. Raoul's golf scores:
79, 85, 82, 86, 90, 94, 83, 85, 79, 91

For 6–7, use the table below.

Campers at Day Camp

Age	5–7	8–10	11–13	14–16
Number	6	11	18	9

6. Make a histogram.

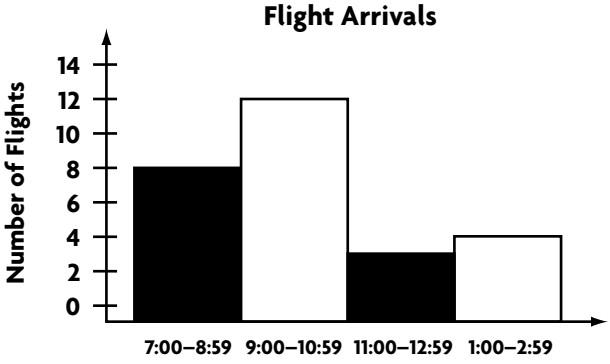


7. How would the number of campers in each group change if you used 5 groups instead of 4 groups?

_____

_____

For 8–9, use the histogram at the right.



8. During which time period did the most flights arrive?

_____

9. How many flights arrived after 11:00?

_____

Mixed Review

10. Bill has 180 baseball cards. He has 3 times as many infielders as outfielders. How many of each does he have?

_____

11. Tim gave a clerk $20.00 for a book and received $3.85 in change. How much did the book cost?

_____

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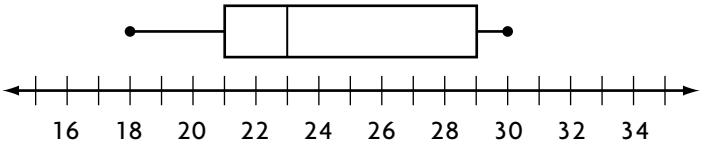
Name _____ LESSON 6.5

Box-and-Whisker Graphs

For Exercises 1–3, use the box-and-whisker graph below.



1. What is the median? _____

2. What are the lower and upper quartiles? _____

3. What are the lower and upper extremes and the range? _____

For Exercises 4–8, use the data in the chart below.

Lengths of Phone Calls (in min)									
17	21	16	22	24	26	18	28	25	29
21	18	14	23	25	18	26	24	22	23

4. What is the median? _____

5. What are the lower and upper quartiles? _____

6. What are the lower and upper extremes and the range? _____

7. Make a box-and-whisker graph.

8. What fractional part of the data is less than 25 minutes? _____

Mixed Review

For 9–10, use the data in the chart above for 4–8.

9. Complete the cumulative frequency table below for the data.

Lengths of Phone Calls		
Minutes	Frequency	Cumulative Frequency
11–15		
16–20		
21–25		
26–30		

10. Make a line plot for the data.

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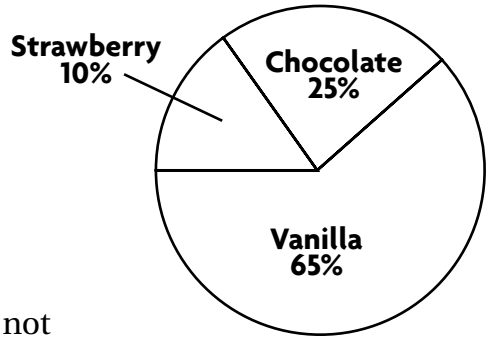
Name _____

Analyze Graphs

Renee asked each student in her math class the following question: "Would you rather have some great vanilla ice cream or would you prefer chocolate or strawberry?"

For 1–2, use the graph at the right, which shows the results of her survey.



1. Could the way Renee asked the question have influenced her classmates' answers? Explain.

_____

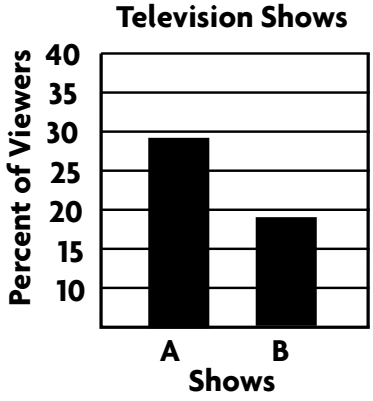
_____

2. Tell how you could rewrite the question so it would not influence the results of the survey.

_____

_____

A television network used the graph at the right to try to convince viewers that one of its shows, Show A, was far more popular than one of its competitor's shows, Show B, which airs at the same time.



3. About how many times as high is the bar for Show A than for Show B?

_____

4. Does twice the percent of the viewing audience watch Show A as watches Show B? _____

5. How can you change the graph so that it is not misleading?

_____

Mixed Review

During one day at an airport, an airline experienced flight delays of the following number of minutes: 5, 7, 5, 10, 15, 15, 20, 91

6. Find the mean length of all the flight delays. _____

7. Find the mean of the delays if the outlier is not included. _____

Evaluate each expression.

8. $g + 1.7$ for $g = 3.3$ _____

9. $5y$ for $y = 1.8$ _____

10. $p - 4.9$ for $p = 11$ _____

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Name _____

LESSON 7.1

Divisibility

Tell whether each number is divisible by 2, 3, 4, 5, 6, 8, 9 or 10.

1. 30 _____	**2.** 24 _____	**3.** 115 _____	**4.** 240 _____
5. 486 _____	**6.** 235 _____	**7.** 279 _____	**8.** 801 _____
9. 145 _____	**10.** 650 _____	**11.** 736 _____	**12.** 1,200 _____
13. 207 _____	**14.** 723 _____	**15.** 2,344 _____	**16.** 868 _____
17. 694 _____	**18.** 4,464 _____	**19.** 3,894 _____	**20.** 306 _____
21. 836 _____	**22.** 5,962 _____	**23.** 2,388 _____	**24.** 792 _____
25. 14,730 _____	**26.** 24,456 _____	**27.** 7,677 _____	**28.** 34,248 _____

For 29–31 write *T* or *F* to tell whether each statement is true or false. If it is false, give an example.

29. No odd number is divisible by 2. _____

30. All numbers that are divisible by 4 are also divisible by 2. _____

31. All numbers that are divisible by 3 are also divisible by 6. _____

32. A number is between 40 and 50 and is divisible by both 3 and 4.

What is the number? _____

Mixed Review

Add or subtract mentally.

33. 451 − 71 _____

34. 898 − 196 _____

35. 109 + 46 + 54 _____

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Name _____

Prime Factorization

Vocabulary

1. Write *true* or *false*. Prime factorization renames a composite number as the product of prime factors. _____

Use division or a factor tree to find the prime factorization.

2. 28 _____

3. 50 _____

4. 76 _____

5. 108 _____

6. 55 _____

7. 120 _____

8. 92 _____

Write the prime factorization in exponent form.

9. 27 _____

10. 100 _____

11. 780 _____

Solve for n to complete the prime factorization.

12. $n \times 17 = 51$ _____ **13.** $3^n \times 2 = 18$ _____ **14.** $2 \times 2 \times 2 \times n = 40$ _____

Mixed Review

Find the mean, median, and mode.

15. 28, 35, 40, 28, 33, 36, 39, 31 _____

16. 7, 7, 8, 9, 6, 6, 7, 10, 10, 9 _____

17. 428, 472, 510, 386, 440 _____

18. 78, 80, 95, 83, 100, 89, 88, 95 _____

19. There are 24 students in Mrs. Garcia's class. She wants to divide the class evenly into groups of at least 4 students. Write the ways in which she can divide the class.

_____

_____

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Name _____

LESSON 7.3

Least Common Multiple and Greatest Common Factor

Vocabulary

Complete.

1. The smallest of the common multiples is called the _____.
2. The largest of the common factors is called the _____.

List the first five multiples of each number.

3. 9 _____
4. 14 _____
5. 22 _____

Find the LCM of each set of numbers.

6. 12, 18 _____
7. 7, 14 _____
8. 16, 20 _____
9. 4, 5, 6 _____
10. 2, 6, 7 _____

Find the GCF of each set of numbers.

11. 15, 45 _____
12. 6, 14 _____
13. 24, 40 _____
14. 8, 12, 52 _____
15. 16, 24, 32 _____

Find a pair of numbers for each set of conditions.

16. The LCM is 35. The GCF is 7. _____
17. The LCM is 36 The GCF is 1. _____
18. The LCM is 120. The GCF is 10. _____

Mixed Review

Determine whether each number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10.

19. 72 _____
20. 80 _____
21. 324 _____
22. 1500 _____

Solve for n to complete the prime factorization.

23. $2 \times n \times 7 = 42$ _____
24. $3^2 \times n = 63$ _____
25. $5 \times 7 \times n = 385$ _____

Find the quotient.

26. $24.14 \div 7.1$ _____
27. $17.29 \div 3.8$ _____
28. $65.024 \div 6.35$ _____

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Name _____

Problem Solving Strategy: Make an Organized List

Solve the problem by making an organized list.

1. Jack and Ashley begin jogging around a quarter-mile track at the same time. Ashley takes 2 minutes to complete each lap and Jack takes 3 minutes. How many laps will each have run the first time they are side-by-side again at the point where they began?

_____

2. Terrence is taking two medications for his flu. He begins taking them both at 10:00 P.M. on Tuesday. If he takes one every 8 hours and the other every 10 hours, on what day and at what time will he take the two medications together again?

_____

3. A large high school has a marching band with 64 woodwind players and 72 brass players. All members of the band line up in rows of equal size. Only musicians playing the same instruments are in the same row. What is the greatest number of musicians who can be in one row?

_____

4. Brice plays in a basketball league. In his last game, he scored more than 20 but fewer than 30 points making a combination of 2- and 3-point shots. If he made 5 more 2-point shots than 3-point shots, how many of each type did he make?

_____

5. Aki is buying franks and buns for a field trip. She sees franks in packages of 6 and buns in packages of 8. There are 70 people going on the trip. What is the least number of each she can buy so there are franks and buns for everyone, with no extra packages?

_____

_____

6. Kiona has 235 CDs. She is buying CD holders for her collection. The two types that she likes hold 20 CDs and 12 CDs each. She wants to buy the same number of each type. What is the least number of each type of CD holder that Kiona will have to buy to hold her entire CD collection?

_____

_____

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Mixed Review

Estimate the sum or difference.

7. 80 + 31 + 87

_____

8. 710 − 189

_____

9. 1,208 + 877 + 439

_____

10. 7,151 − 2,993

_____

11. 67 + 123 + 804

_____

12. 920 − 592

_____

Name _____ LESSON 8.1

Equivalent Fractions and Simplest Form

Vocabulary

Complete.

1. When the numerator and denominator of a fraction have no common factor other than 1, the fraction is in _____.

2. Fractions that name the same amount or the same part of a whole are called _____.

Write the factors common to the numerator and denominator.

3. $\frac{8}{32}$ _____

4. $\frac{10}{50}$ _____

5. $\frac{2}{13}$ _____

6. $\frac{14}{49}$ _____

7. $\frac{1}{19}$ _____

8. $\frac{12}{18}$ _____

9. $\frac{25}{75}$ _____

10. $\frac{15}{40}$ _____

11. $\frac{9}{54}$ _____

12. $\frac{6}{33}$ _____

Write the fraction in simplest form.

13. $\frac{9}{36}$ _____

14. $\frac{15}{50}$ _____

15. $\frac{11}{121}$ _____

16. $\frac{15}{36}$ _____

17. $\frac{14}{28}$ _____

18. $\frac{30}{66}$ _____

19. $\frac{63}{72}$ _____

20. $\frac{27}{81}$ _____

21. $\frac{25}{65}$ _____

22. $\frac{12}{42}$ _____

Complete.

23. $\frac{36}{72} = \frac{1}{\square}$

24. $\frac{\square}{75} = \frac{2}{3}$

25. $\frac{17}{\square} = \frac{1}{5}$

26. $\frac{63}{84} = \frac{3}{\square}$

27. $\frac{2}{\square} = \frac{64}{96}$

Mixed Review

Tell whether you would use a bar, line, or circle graph to display the data.

28. The number of students in each grade at your school _____

29. A hospital patient's temperature taken each hour for 8 hours _____

30. The part of each day you spend at various activities _____

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Name _____ LESSON 8.2

Mixed Numbers and Fractions

Vocabulary

Complete.

1. A _____ has a whole-number part and a fraction part.

Write the fraction as a mixed number or a whole number.

2. $\frac{20}{5}$ _____
3. $\frac{19}{4}$ _____
4. $\frac{22}{7}$ _____
5. $\frac{39}{10}$ _____
6. $\frac{19}{10}$ _____
7. $\frac{75}{15}$ _____
8. $\frac{44}{13}$ _____
9. $\frac{50}{7}$ _____
10. $\frac{63}{21}$ _____
11. $\frac{41}{8}$ _____
12. $\frac{25}{6}$ _____
13. $\frac{72}{12}$ _____
14. $\frac{55}{9}$ _____
15. $\frac{46}{5}$ _____
16. $\frac{77}{11}$ _____

Write the mixed number as a fraction.

17. $6\frac{2}{7}$ _____
18. $4\frac{6}{11}$ _____
19. $9\frac{2}{3}$ _____
20. $11\frac{1}{5}$ _____
21. $2\frac{2}{3}$ _____
22. $7\frac{2}{9}$ _____
23. $12\frac{4}{5}$ _____
24. $4\frac{5}{8}$ _____
25. $8\frac{2}{3}$ _____
26. $13\frac{1}{2}$ _____

Mixed Review

Write the prime factorization of each number using exponents.

27. 84 _____
28. 72 _____
29. 300 _____

Write the fraction in simplest form.

30. $\frac{35}{45}$ _____
31. $\frac{36}{42}$ _____
32. $\frac{56}{72}$ _____
33. $\frac{22}{55}$ _____
34. $\frac{18}{81}$ _____
35. $\frac{24}{30}$ _____
36. $\frac{16}{40}$ _____
37. $\frac{24}{36}$ _____
38. $\frac{27}{63}$ _____
39. $\frac{72}{88}$ _____

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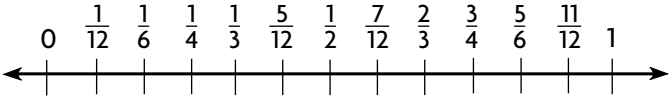
Name _____ LESSON 8.3

Compare and Order Fractions

Compare the fracons. Write $<$, $>$, or $=$ for each •.

1. $\frac{5}{6} \bullet \frac{3}{4}$ ____
2. $\frac{1}{4} \bullet \frac{1}{5}$ ____
3. $\frac{2}{3} \bullet \frac{3}{8}$ ____
4. $\frac{5}{8} \bullet \frac{3}{4}$ ____
5. $\frac{9}{10} \bullet \frac{7}{8}$ ____
6. $\frac{7}{12} \bullet \frac{3}{4}$ ____
7. $\frac{13}{16} \bullet \frac{5}{6}$ ____
8. $\frac{1}{7} \bullet \frac{1}{6}$ ____
9. $\frac{2}{5} \bullet \frac{5}{6}$ ____
10. $\frac{9}{15} \bullet \frac{3}{5}$ ____
11. $\frac{4}{7} \bullet \frac{3}{5}$ ____
12. $\frac{7}{8} \bullet \frac{17}{20}$ ____
13. $\frac{4}{5} \bullet \frac{16}{20}$ ____
14. $\frac{7}{9} \bullet \frac{2}{3}$ ____
15. $\frac{1}{9} \bullet \frac{2}{3}$ ____
16. $\frac{5}{9} \bullet \frac{6}{11}$ ____

Use the number line to order the fractions from least to greatest.



17. $\frac{1}{6}, \frac{5}{12}, \frac{1}{3}$ _____
18. $\frac{5}{6}, \frac{7}{12}, \frac{1}{2}$ _____
19. $\frac{3}{4}, \frac{11}{12}, \frac{2}{3}$ _____
20. $\frac{2}{3}, \frac{7}{12}, \frac{5}{12}$ _____
21. $\frac{1}{2}, \frac{5}{6}, \frac{1}{6}$ _____
22. $\frac{7}{12}, \frac{1}{6}, \frac{1}{3}$ _____

Order the fractions from least to greatest.

23. $\frac{1}{4}, \frac{1}{6}, \frac{2}{5}$ _____
24. $\frac{4}{5}, \frac{2}{3}, \frac{3}{10}$ _____
25. $\frac{1}{5}, \frac{3}{8}, \frac{4}{5}$ _____
26. $\frac{7}{8}, \frac{4}{5}, \frac{9}{10}$ _____
27. $\frac{3}{4}, \frac{7}{10}, \frac{5}{7}$ _____
28. $\frac{3}{5}, \frac{1}{8}, \frac{3}{10}$ _____

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Mixed Review

Find the mean, median, and mode

29. 6, 6, 2, 4, 8, 6, 5, 3 _____
30. 23, 26, 24, 19, 31, 33 _____
31. 12, 9, 21, 11, 15, 15, 8 _____

Name _____ LESSON 8.5

Fractions, Decimals, and Percents

Write the decimal as a fraction.

1. 0.5 _____ **2.** 0.14 _____ **3.** 0.06 _____ **4.** 0.83 _____

5. 0.62 _____ **6.** 0.317 _____ **7.** 0.805 _____ **8.** 0.955 _____

Write as a decimal. Tell whether the decimal terminates or repeats.

9. $\frac{3}{10}$ _____ **10.** $\frac{6}{9}$ _____ **11.** $\frac{7}{12}$ _____ **12.** $\frac{11}{20}$ _____

13. $\frac{7}{30}$ _____ **14.** $\frac{9}{10}$ _____ **15.** $\frac{7}{15}$ _____ **16.** $\frac{4}{11}$ _____

Compare. Write $<$, $>$, or $=$ for each •.

17. $0.24 \bullet \frac{1}{4}$ _____ **18.** $0.18 \bullet \frac{7}{50}$ _____ **19.** $\frac{4}{10} \bullet 0.44$ _____

20. $\frac{1}{5} \bullet 0.19$ _____ **21.** $\frac{7}{20} \bullet 0.45$ _____ **22.** $\frac{9}{20} \bullet 0.45$ _____

Write the fraction as a percent.

23. $\frac{3}{5}$ _____ **24.** $\frac{17}{100}$ _____ **25.** $\frac{4}{2}$ _____ **26.** $\frac{1}{500}$ _____

27. $\frac{9}{25}$ _____ **28.** $\frac{7}{5}$ _____ **29.** $\frac{6}{40}$ _____ **30.** $\frac{17}{20}$ _____

Mixed Review

Estimate.

31. $56.09 \div 7.1$ _____ **32.** $64.1 - 13.9$ _____ **33.** $97.6 \div 9.8$ _____ **34.** $\$1.79 - \$0.82$ _____

35. 188.2×21.3 _____ **36.** $602.5 + 102.4$ _____ **37.** $\$49.34 \times 5$ _____ **38.** $711.2 + 798.5$ _____

Evaluate the expression.

39. $6 + 4 \times 3$ _____ **40.** $18 - 6 + 2$ _____ **41.** $(10 \times 3) \div 6$ _____

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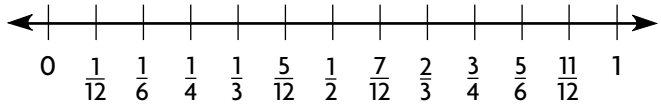
Name _____ LESSON 9.1

Estimate Sums and Differences

Use the number line to tell whether the fraction is close to 0, $\frac{1}{2}$, or 1. Write *close to 0, close to* $\frac{1}{2}$, or *close to* 1.



1. $\frac{2}{3}$ _____ **2.** $\frac{1}{12}$ _____ **3.** $\frac{11}{12}$ _____ **4.** $\frac{1}{3}$ _____

Estimate the sum or difference.

5. $\frac{4}{5} + \frac{1}{8}$ _____ **6.** $\frac{5}{6} - \frac{2}{3}$ _____ **7.** $\frac{1}{10} + \frac{4}{7}$ _____ **8.** $\frac{3}{4} + \frac{9}{10}$ _____

9. $5\frac{3}{5} + 1\frac{7}{8}$ _____ **10.** $6\frac{10}{11} - 3\frac{1}{15}$ _____ **11.** $4\frac{2}{9} + 3\frac{6}{7}$ _____ **12.** $8\frac{7}{9} - 3\frac{11}{12}$ _____

13. $\frac{1}{7} + \frac{9}{11}$ _____ **14.** $\frac{4}{7} - \frac{1}{2}$ _____ **15.** $\frac{5}{11} + \frac{8}{10}$ _____ **16.** $\frac{3}{4} - \frac{1}{9}$ _____

17. $9\frac{11}{14} - 1\frac{7}{10}$ _____ **18.** $5\frac{2}{3} + 4\frac{1}{6}$ _____ **19.** $8\frac{5}{7} - 3\frac{4}{5}$ _____ **20.** $6\frac{7}{16} - 4\frac{5}{6}$ _____

Use a range to estimate each sum or difference.

21. $7\frac{3}{4} - 1\frac{1}{12}$ _____ **22.** $12\frac{11}{21} - 4\frac{3}{8}$ _____ **23.** $13\frac{8}{9} + 1\frac{4}{5}$ _____ **24.** $6\frac{2}{15} + 4\frac{3}{7}$ _____

Mixed Review

Write the fraction in simplest form.

25. $\frac{15}{20}$ _____ **26.** $\frac{16}{28}$ _____ **27.** $\frac{48}{96}$ _____ **28.** $\frac{28}{36}$ _____

29. $\frac{5}{45}$ _____ **30.** $\frac{8}{32}$ _____ **31.** $\frac{36}{63}$ _____ **32.** $\frac{25}{125}$ _____

Evaluate the expression for $m = 8$ and $n = 3$.

33. $4 + m \div 2$ _____ **34.** $6 \times n + 7$ _____ **35.** $15 - n \times 2$ _____

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Name _____

LESSON 9.3

Add and Subtract Fractions

Use the LCD to rewrite each problem with equivalent fractions.

1. $\frac{3}{8} + \frac{1}{2}$ _____ **2.** $\frac{3}{4} - \frac{1}{6}$ _____ **3.** $\frac{2}{3} + \frac{4}{5}$ _____ **4.** $\frac{8}{9} - \frac{1}{3}$ _____ **5.** $\frac{1}{4} + \frac{3}{7}$ _____

Write the sum or difference in simplest form. Estimate to check.

6. $\frac{1}{2} + \frac{1}{5}$ _____ **7.** $\frac{6}{7} - \frac{1}{4}$ _____ **8.** $\frac{9}{10} - \frac{3}{5}$ _____ **9.** $\frac{7}{8} - \frac{1}{2}$ _____ **10.** $\frac{3}{4} + \frac{5}{8}$ _____

11. $\frac{4}{5} - \frac{1}{3}$ _____ **12.** $\frac{5}{8} + \frac{1}{10}$ _____ **13.** $\frac{1}{2} - \frac{1}{6}$ _____ **14.** $\frac{7}{10} + \frac{1}{4}$ _____ **15.** $\frac{5}{6} + \frac{1}{3}$ _____

16. $\frac{11}{12} - \frac{1}{4}$ _____ **17.** $\frac{3}{10} + \frac{1}{2}$ _____ **18.** $\frac{3}{4} + \frac{1}{12}$ _____ **19.** $\frac{6}{7} - \frac{1}{3}$ _____ **20.** $\frac{4}{5} - \frac{1}{6}$ _____

21. $\frac{3}{4} + \frac{1}{2}$ _____ **22.** $\frac{2}{3} - \frac{3}{8}$ _____ **23.** $\frac{3}{5} + \frac{1}{15}$ _____ **24.** $\frac{13}{14} - \frac{2}{7}$ _____ **25.** $\frac{1}{3} - \frac{1}{5}$ _____

26. $\frac{7}{10} - \frac{2}{5}$ _____ **27.** $\frac{1}{7} + \frac{1}{2}$ _____ **28.** $\frac{7}{12} - \frac{1}{4}$ _____ **29.** $\frac{7}{15} - \frac{2}{5}$ _____ **30.** $\frac{2}{5} + \frac{1}{3}$ _____

31. $\frac{4}{9} + \frac{1}{2}$ _____ **32.** $\frac{2}{3} - \frac{2}{7}$ _____ **33.** $\frac{5}{8} + \frac{1}{3}$ _____ **34.** $\frac{2}{3} + \frac{1}{9}$ _____ **35.** $\frac{5}{6} - \frac{1}{2}$ _____

Mixed Review

Find the mean, median, and mode.

36. 57, 71, 50, 57, 53, 60 _____

37. 21, 25, 29, 18, 31, 27, 24 _____

Find the quotient.

38. 26.98 ÷ 3.8 _____ **39.** 1.365 ÷ 0.07 _____ **40.** 174.08 ÷ 27.2 _____

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Name _____ LESSON 9.4

Add and Subtract Mixed Numbers

Draw a diagram to find each sum or difference. Write the answer in simplest form.

1. $1\frac{2}{5} + 1\frac{2}{5}$ _____ **2.** $2\frac{3}{8} - 1\frac{1}{4}$ _____ **3.** $2\frac{1}{6} + 1\frac{1}{3}$ _____

4. $3\frac{1}{2} - 1\frac{1}{4}$ _____ **5.** $2\frac{3}{8} + 1\frac{1}{2}$ _____ **6.** $2\frac{2}{3} - 1\frac{1}{6}$ _____

Write the sum or difference in simplest form. Estimate to check.

7. $1\frac{1}{5} + 1\frac{1}{4}$ _____ **8.** $2\frac{1}{2} - 1\frac{1}{8}$ _____ **9.** $8\frac{5}{12} - 1\frac{1}{4}$ _____

10. $1\frac{1}{6} + 2\frac{2}{3}$ _____ **11.** $4\frac{3}{4} - 2\frac{3}{8}$ _____ **12.** $2\frac{1}{2} + 4\frac{4}{5}$ _____

13. $5\frac{7}{9} - 3\frac{2}{3}$ _____ **14.** $4\frac{3}{5} - 3\frac{1}{10}$ _____ **15.** $1\frac{1}{6} + 4\frac{3}{4}$ _____

16. $7\frac{1}{3} - 2\frac{1}{4}$ _____ **17.** $5\frac{5}{6} - 1\frac{2}{3}$ _____ **18.** $3\frac{2}{5} + 4\frac{1}{6}$ _____

19. $3\frac{1}{2} + 1\frac{5}{8}$ _____ **20.** $3\frac{7}{8} + 4\frac{1}{3}$ _____ **21.** $6\frac{5}{8} - 2\frac{2}{5}$ _____

Mixed Review

Write the fraction as a percent.

22. $\frac{1}{4}$ _____ **23.** $\frac{3}{10}$ _____ **24.** $\frac{2}{5}$ _____

25. $\frac{5}{100}$ _____ **26.** $\frac{10}{5}$ _____ **27.** $\frac{9}{50}$ _____

Write the numbers in order from least to greatest.

28. 0.303, 0.03, 0.33, 0.033

_____

29. 11.10, 10.01, 11.01, 10.10

_____

30. 2.292, 2.922, 2.929, 2.229

_____

31. 0.545, 0.55, 0.445, 0.45

_____

32. 6.626, 6.266, 6.226, 6.662

_____

33. 7.070, 70.07, 7.007, 7.707

_____

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Name _____

LESSON 9.6

Subtract Mixed Numbers

Write the difference in simplest form. Estimate to check.

1. $8\frac{3}{4} - 6\frac{1}{2}$ _____

2. $4\frac{1}{5} - 2\frac{7}{10}$ _____

3. $7\frac{1}{4} - 2\frac{2}{3}$ _____

4. $5\frac{2}{9} - 3\frac{2}{3}$ _____

5. $3\frac{1}{5} - 2\frac{3}{10}$ _____

6. $5\frac{3}{8} - 4\frac{1}{2}$ _____

7. $6\frac{1}{3} - 2\frac{3}{4}$ _____

8. $1\frac{7}{9} - 1\frac{2}{3}$ _____

9. $4\frac{2}{3} - 1\frac{1}{2}$ _____

10. $5\frac{4}{5} - 3\frac{1}{4}$ _____

11. $3\frac{1}{3} - 1\frac{4}{9}$ _____

12. $4\frac{5}{8} - 2\frac{1}{2}$ _____

13. $5\frac{1}{6} - 3\frac{2}{3}$ _____

14. $4\frac{3}{5} - 2\frac{7}{10}$ _____

15. $4\frac{1}{8} - 2\frac{3}{4}$ _____

16. $3\frac{1}{2} - 1\frac{4}{5}$ _____

17. $5\frac{1}{4} - 2\frac{3}{8}$ _____

18. $6\frac{1}{4} - 4\frac{2}{5}$ _____

19. $9\frac{3}{8} - 4\frac{1}{3}$ _____

20. $5\frac{1}{6} - 1\frac{5}{8}$ _____

Evaluate each expression for $a = 3\frac{1}{3}$, $b = 2\frac{1}{4}$, $c = 5\frac{1}{6}$.

21. $c - a$ _____

22. $c - b$ _____

23. $a - b$ _____

Mixed Review

Write in exponential form.

24. $5 \times 5 \times 5 \times 5$ _____

25. $10 \times 10 \times 10$ _____

26. $k \times k \times k \times k \times k$ _____

27. $w \times w$ _____

Evaluate each expression.

28. $17.61 - s$ for $s = 12.18$ _____

29. $75.6 \div v$ for $v = 6.3$ _____

30. $5f$ for $f = 8.7$ _____

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Name _____ LESSON 9.7

Problem Solving Strategy: Draw a Diagram

Solve the problem by drawing a diagram.

1. In the school art room the students use square tables. Each side of a table is $4\frac{1}{2}$ ft. If some of the tables are placed end-to-end, they form a rectangle with a perimeter of 36 ft. How many tables are used to make the rectangle?

_____

2. The art room is on one side of the hallway with an office, a classroom, and the music room. The art room is between the classroom and the office. The classroom is between the music room and the art room. Which two rooms are on the ends of the hallway?

_____

3. During art class, 2 students can sit at each side of a square table. The students decide to make a large rectangular table by placing 5 square tables end-to-end. How many students will be able to sit at this large table?

_____

4. Richard is cutting a hole in a wall to hold an air conditioner. The front of the air conditioner is a rectangle 26 in. wide and 16 in. high. The wall is 72 in. wide. If the air conditioner is centered in the wall, how wide will the wall be on either side of it?

_____

5. Cassandra is training for a charity walk between two towns. The towns are 12 mi apart. On her first day of training, she walks $4\frac{1}{2}$ mi. If she increases her distance by $1\frac{1}{2}$ mi every 3 days, how many days will it take until Cassandra has walked at least 10 mi?

_____

6. Marla wants to wrap a present that is in the shape of a cube. She wants to put one piece of ribbon around the top, bottom and two sides. She wants to put a second piece around the top, bottom, and other two sides. The box is $8\frac{1}{2}$ in. on each edge. What is the shortest length of ribbon she needs?

_____

Mixed Review

Write the number in standard form.

7. six hundred and three tenths _____

8. ninety-one hundredths _____

9. ninety and seven hundredths _____

10. eighty and nine tenths _____

Find the GCF for each set of numbers.

11. 10, 15 _____ **12.** 16, 40 _____ **13.** 18, 45 _____ **14.** 20, 28 _____ **15.** 24, 56 _____

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Name _____

Estimate Products and Quotients

Estimate each product or quotient.

1. $4\frac{1}{4} \times 3\frac{3}{4}$ ____
2. $20\frac{5}{6} \div 6\frac{3}{4}$ ____
3. $\frac{3}{4} \times \frac{5}{6}$ ____
4. $\frac{3}{4} \div \frac{2}{3}$ ____
5. $45\frac{1}{3} \div 8\frac{2}{3}$ ____
6. $17\frac{2}{7} \times 1\frac{2}{7}$ ____
7. $2\frac{3}{5} \div \frac{2}{5}$ ____
8. $19 \times 6\frac{1}{3}$ ____
9. $2\frac{3}{4} \times 2\frac{4}{5}$ ____
10. $36\frac{3}{7} \div 11\frac{3}{4}$ ____
11. $\frac{7}{9} \times 13\frac{1}{9}$ ____
12. $\frac{1}{5} \div 20$ ____
13. $3\frac{3}{4} \div 4\frac{1}{2}$ ____
14. $42\frac{1}{6} \times 14\frac{4}{9}$ ____
15. $\frac{1}{10} \times \frac{1}{10}$ ____
16. $8\frac{1}{3} \times 6\frac{4}{5}$ ____
17. $12\frac{1}{6} \div 3\frac{2}{3}$ ____
18. $40\frac{2}{9} \div 7\frac{4}{5}$ ____
19. $10\frac{5}{6} \times 3\frac{7}{8}$ ____
20. $18\frac{3}{10} \div 1\frac{6}{7}$ ____
21. $9\frac{3}{4} \times 17\frac{1}{5}$ ____

Estimate to compare. Write $<$, $>$, or $=$ for ●.

22. $3\frac{1}{8} \times 5$ ● $12 \div \frac{9}{10}$ ____
23. $6\frac{1}{2} \div 12$ ● $\frac{5}{8} \div 1\frac{2}{3}$ ____
24. $5\frac{2}{7} \div 1\frac{3}{8}$ ● $2\frac{1}{8} \div 3\frac{7}{8}$ ____
25. $3\frac{3}{4} \times 1\frac{1}{4}$ ● $31\frac{3}{4} \div 8\frac{1}{4}$ ____
26. $15\frac{1}{5} \div 4\frac{2}{3}$ ● $1\frac{3}{4} \div 3\frac{4}{5}$ ____
27. $7\frac{2}{9} \times 1\frac{5}{7}$ ● $36\frac{1}{2} \div 2\frac{7}{8}$ ____

Mixed Review

Write the fraction as a percent.

28. $\frac{3}{4}$ _____
29. $\frac{7}{10}$ _____
30. $\frac{1}{20}$ _____
31. $\frac{3}{25}$ _____
32. $\frac{29}{50}$ _____
33. $\frac{13}{10}$ _____
34. $\frac{1}{8}$ _____
35. $\frac{5}{8}$ _____

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Name _____

LESSON 10.2

Multiply Fractions

Make a model to find the product.

1. $\frac{1}{2} \times 6$ ____

2. $\frac{2}{5} \times \frac{1}{2}$ ____

3. $\frac{1}{8} \times \frac{1}{2}$ ____

4. $10 \times \frac{1}{2}$ ____

5. $\frac{1}{2} \times \frac{1}{3}$ ____

Multiply. Write the answer in simplest form.

6. $\frac{1}{4} \times \frac{1}{6}$ ____

7. $\frac{1}{5} \times \frac{1}{2}$ ____

8. $\frac{3}{8} \times \frac{1}{4}$ ____

9. $\frac{3}{5} \times \frac{1}{4}$ ____

10. $\frac{4}{5} \times \frac{1}{2}$ ____

11. $\frac{1}{4} \times \frac{8}{9}$ ____

12. $\frac{3}{4} \times \frac{2}{7}$ ____

13. $\frac{5}{9} \times \frac{9}{10}$ ____

14. $\frac{5}{6} \times \frac{2}{5}$ ____

15. $\frac{6}{7} \times \frac{2}{3}$ ____

16. $\frac{3}{4} \times \frac{8}{9}$ ____

17. $\frac{3}{4} \times \frac{8}{15}$ ____

18. $\frac{1}{6} \times \frac{8}{9}$ ____

19. $\frac{7}{8} \times 24$ ____

20. $\frac{3}{8} \times \frac{1}{3}$ ____

21. $\frac{5}{6} \times \frac{3}{10}$ ____

22 $\frac{9}{10} \times \frac{2}{3}$ ____

23. $30 \times \frac{4}{5}$ ____

24. $\frac{1}{2} \times \frac{12}{13}$ ____

25. $\frac{9}{11} \times \frac{22}{27}$ ____

Compare. Write $<$, $>$, or $=$ for ●.

26. $\frac{1}{2} \times \frac{2}{3}$ ● $\frac{2}{3}$ ____

27. $\frac{3}{4} \times 8$ ● 6 ____

28. $\frac{1}{4} \times 4$ ● $\frac{1}{4}$ ____

Mixed Review

Write each mixed number as a fraction.

29. $4\frac{2}{5}$ ____

30. $6\frac{3}{7}$ ____

31. $2\frac{8}{11}$ ____

32. $5\frac{3}{5}$ ____

Write each fraction as a mixed number.

33. $\frac{12}{7}$ ____

34. $\frac{41}{12}$ ____

35. $\frac{25}{6}$ ____

36. $\frac{50}{9}$ ____

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Name _____

Multiply Mixed Numbers

Use the Distributive Property to multiply.

1. $7 \times 4\frac{1}{6}$ _____
2. $1\frac{1}{4} \times 8$ _____
3. $5\frac{3}{8} \times 3$ _____
4. $6 \times 2\frac{4}{5}$ _____

Multiply. Write your answer in simplest form.

5. $2\frac{1}{2} \times 1\frac{1}{3}$ _____
6. $3\frac{1}{5} \times 2\frac{1}{2}$ _____
7. $8\frac{3}{4} \times \frac{2}{5}$ _____
8. $3\frac{1}{3} \times 1\frac{1}{5}$ _____
9. $3\frac{1}{3} \times 2\frac{2}{5}$ _____
10. $1\frac{3}{4} \times \frac{3}{14}$ _____
11. $4\frac{2}{5} \times \frac{10}{11}$ _____
12. $\frac{6}{7} \times 2\frac{1}{10}$ _____
13. $3\frac{1}{2} \times 1\frac{1}{4}$ _____
14. $2\frac{3}{5} \times 1\frac{2}{3}$ _____
15. $4\frac{3}{8} \times \frac{1}{2}$ _____
16. $6\frac{4}{5} \times \frac{5}{8}$ _____
17. $2\frac{1}{4} \times 3\frac{1}{5}$ _____
18. $9\frac{1}{3} \times 1\frac{2}{7}$ _____
19. $\frac{3}{5} \times 1\frac{2}{3}$ _____
20. $12\frac{1}{3} \times 1\frac{1}{2}$ _____
21. $1\frac{1}{8} \times \frac{1}{3}$ _____
22. $3\frac{3}{4} \times 1\frac{5}{6}$ _____
23. $2\frac{2}{5} \times 1\frac{5}{8}$ _____
24. $5\frac{3}{5} \times 1\frac{2}{7}$ _____

Compare. Write $<$, $>$, or $=$ for ●.

25. $2\frac{1}{2} \times 2\frac{3}{4}$ ● $3\frac{1}{2} \times 4$ ____

26. $6\frac{2}{3} \times 3\frac{3}{5}$ ● $3\frac{3}{4} \times 6\frac{2}{5}$ ____

Mixed Review

Use the data in the chart for 27–28.

Quiz Scores								
30	27	21	27	25	30	29	19	15
26	27	28	22	25	23	26	18	17

27. Make a stem-and-leaf plot of the data.

28. Use the stem-and-leaf plot to find the median and mode.

_____

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Name _____

LESSON 10.5

Divide Fractions and Mixed Numbers

Write the reciprocal of the number.

1. $\frac{6}{7}$ _____ **2.** $\frac{1}{9}$ _____ **3.** 5 _____ **4.** $\frac{8}{5}$ _____ **5.** $3\frac{1}{3}$ _____

Find the quotient. Write it in simplest form.

6. $\frac{4}{5} \div \frac{8}{15}$ _____ **7.** $\frac{7}{10} \div \frac{1}{2}$ _____ **8.** $\frac{5}{6} \div \frac{1}{2}$ _____ **9.** $24 \div \frac{1}{2}$ _____

10. $9 \div \frac{1}{6}$ _____ **11.** $\frac{7}{9} \div \frac{2}{3}$ _____ **12.** $\frac{9}{10} \div \frac{2}{5}$ _____ **13.** $\frac{9}{20} \div \frac{3}{4}$ _____

14. $\frac{5}{8} \div \frac{5}{16}$ _____ **15.** $\frac{5}{6} \div \frac{2}{3}$ _____ **16.** $\frac{12}{21} \div \frac{4}{7}$ _____ **17.** $\frac{5}{8} \div \frac{1}{4}$ _____

18. $\frac{3}{4} \div \frac{2}{3}$ _____ **19.** $\frac{5}{9} \div \frac{5}{6}$ _____ **20.** $\frac{7}{8} \div 12$ _____ **21.** $15 \div \frac{5}{9}$ _____

22. $\frac{5}{12} \div \frac{3}{4}$ _____ **23.** $\frac{3}{8} \div 18$ _____ **24.** $\frac{7}{10} \div 14$ _____ **25.** $24 \div \frac{4}{5}$ _____

Mixed Review

Use mental math to find each quotient.

26. $10 \div \frac{1}{4}$ _____ **27.** $12 \div \frac{1}{6}$ _____ **28.** $3 \div \frac{1}{10}$ _____ **29.** $15 \div \frac{1}{2}$ _____

Find the mean, median, and mode.

30. 8, 10, 12, 11, 8, 9, 10, 10 _____

31. 228, 209, 195, 187, 251 _____

Compare. Write $<$, $>$, or $=$ for ●.

32. $\frac{4}{5}$ ● $\frac{8}{9}$ _____ **33.** $\frac{5}{13}$ ● $\frac{4}{13}$ _____ **34.** $\frac{6}{15}$ ● $\frac{2}{5}$ _____ **35.** $\frac{6}{7}$ ● $\frac{14}{15}$ _____

Name _____

Problem Solving Skill: Choose the Operation

Solve. Name the operations used.

1. Marie practiced piano a total of $17\frac{1}{2}$ hr last week. If she practiced the same amount of time each day, how long did she practice daily?

_____

2. Sylvan withdrew $\frac{2}{5}$ of the amount in his savings account, and spent $\frac{7}{10}$ of that money. What fraction of his total savings does he still have?

_____

3. Ike practices guitar $2\frac{1}{2}$ hr per day, but Jenn only practices $\frac{3}{4}$ hr. How much longer does Ike practice?

_____

4. A painter is going to paint a wall that measures $2\frac{2}{3}$ yd by $4\frac{1}{2}$ yd. What is the area of the wall?

_____

5. José gives each of his 15 patio plants $\frac{3}{4}$ qt of water daily in warm weather. How much water does José use on his plants on a warm day?

_____

6. José waters each of his 15 patio plants with $\frac{1}{2}$ qt water daily in cool weather. How much water can José expect to use on his patio plants during a cool week?

_____

7. Marisol rode her scooter $1\frac{1}{2}$ mi to Athena's home, then $\frac{3}{4}$ mi to Ariel's home, then $1\frac{1}{4}$ mi back to her home. How far did Marisol ride?

_____

8. Bill can polish a car in $2\frac{3}{4}$ hr. Lara and Danny can do the same job working together in $1\frac{1}{2}$ hr. How much faster than Bill can Lara and Danny do the job when working together?

_____

Mixed Review

Write each fraction in simplest form.

9. $\frac{5}{10}$ _____ **10** $\frac{20}{50}$ _____ **11.** $\frac{15}{25}$ _____ **12.** $\frac{22}{32}$ _____ **13.** $\frac{21}{24}$ _____

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Name _____

LESSON 10.7

Algebra: Fraction Expressions and Equations

Evaluate the expression.

1. $2\frac{1}{4} + x, x = 2\frac{1}{8}$ _____

2. $2\frac{1}{4} + x, x = \frac{1}{2}$ _____

3. $2\frac{1}{4} + x, x = \frac{3}{8}$ _____

4. $y - 2\frac{3}{5}, y = 5\frac{4}{5}$ _____

5. $y - 2\frac{3}{5}, y = 4\frac{7}{10}$ _____

6. $y - 2\frac{3}{5}, y = 6$ _____

7. $\frac{3}{5}s, s = 2$ _____

8. $\frac{3}{5}s, s = \frac{1}{3}$ _____

9. $\frac{3}{5}s, s = 1\frac{2}{3}$ _____

10. $6\frac{2}{7}p, p = \frac{1}{2}$ _____

11. $6\frac{2}{7}p, p = \frac{7}{3}$ _____

12. $6\frac{2}{7}p, p = 2\frac{5}{8}$ _____

13. $x \div 1\frac{1}{2}, x = 4\frac{1}{2}$ _____

14. $x \div 3\frac{1}{4}, x = \frac{1}{4}$ _____

15. $x \div 2\frac{1}{3}, x = 2\frac{1}{3}$ _____

Use mental math to solve the equation.

16. $x + 5\frac{3}{4} = 5\frac{7}{8}$ _____

17. $\frac{1}{2}y = \frac{1}{12}$ _____

18. $z - 8\frac{1}{3} = 12\frac{1}{2}$ _____

19. $w \div \frac{9}{20} = \frac{5}{9}$ _____

20. $\frac{4}{5}n = 3$ _____

21. $c + 4\frac{1}{3} = 7\frac{5}{6}$ _____

22. $m - 6\frac{1}{2} = 5\frac{7}{8}$ _____

23. $d \times \frac{3}{4} = 9\frac{3}{4}$ _____

Mixed Review

Add or subtract. Write the answer in simplest form.

24. $\frac{7}{8} - \frac{3}{4}$ _____

25. $\frac{1}{2} - \frac{1}{12}$ _____

26. $\frac{1}{3} + \frac{1}{2}$ _____

27. $\frac{2}{5} + \frac{9}{20}$ _____

28. $\frac{4}{5} - \frac{3}{7}$ _____

29. $\frac{4}{9} + \frac{3}{10}$ _____

30. $\frac{7}{10} - \frac{1}{6}$ _____

31. $\frac{5}{12} + \frac{8}{15}$ _____

32. $4\frac{1}{2} + 2\frac{1}{4} + 1\frac{1}{8}$ _____

33. $4\frac{3}{8} - 2\frac{3}{4}$ _____

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Name _____

LESSON 11.1

Understand Integers

Vocabulary

Complete.

1. _____ include all whole numbers and their opposites.

2. The _____ of an integer is its distance from 0.

Write an integer to represent each situation.

3. earning 7 dollars

_____

4. digging a hole 2 feet deep

_____

5. taking 10 steps backward

_____

6. climbing up a mountain 20 feet

_____

Find the absolute value.

7. $|-3|$ _____

8. $|+3|$ _____

9. $|-2|$ _____

10. $|-6|$ _____

11. $|+9|$ _____

12. $|-15|$ _____

13. $|-32|$ _____

14. $|+32|$ _____

15. $|-47|$ _____

16. $|+78|$ _____

17. $|-180|$ _____

18. $|+574|$ _____

Write the opposite integer

19. -5 _____

20. $+13$ _____

21. $+21$ _____

22. -19 _____

23. -25 _____

24. $+37$ _____

Mixed Review

Multiply. Write the answer in simplest form.

25. $\frac{1}{5} \times \frac{6}{7}$ _____

26. $\frac{4}{9} \times \frac{3}{5}$ _____

27. $\frac{4}{5} \times 30$ _____

28. $2\frac{7}{10} \times \frac{2}{3}$ _____

29. $3\frac{3}{4} \times 2\frac{2}{5}$ _____

30. $1\frac{1}{2} \times 3\frac{1}{3}$ _____

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Name _____

LESSON 11.2

Rational Numbers

Use the number line to find a rational number between the two given numbers.

1. 2 and $2\frac{1}{2}$ _____

2. $2\frac{1}{2}$ and 3 _____

3. 3 and $3\frac{1}{2}$ _____

4. $3\frac{1}{2}$ and 4 _____

Find a rational number between the two given numbers.

5. $\frac{3}{8}$ and $\frac{4}{6}$ _____

6. $\frac{3}{8}$ and $\frac{2}{3}$ _____

7. $1\frac{7}{8}$ and $1\frac{3}{4}$ _____

8. $^{-}3$ and $^{-}3\frac{1}{2}$ _____

9. 3.1 and 3.2 _____

10. $^{-}1.7$ and $^{-}1.8$ _____

11. $^{-}5.6$ and $^{-}5.7$ _____

12. 3.04 and 3.05 _____

Write each rational number in the form $\frac{a}{b}$.

13. $3\frac{1}{2}$ _____

14. 0.3 _____

15. 0.45 _____

16. 11.2 _____

17. $2\frac{1}{4}$ _____

18. 3.15 _____

19. 15 _____

20. 27 _____

21. $3\frac{1}{5}$ _____

22. 0.59 _____

23. 370 _____

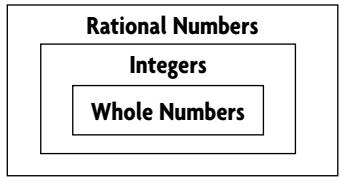
24. $4\frac{1}{7}$ _____

Use the Venn diagram at the right to determine in which set or sets the number belongs.

25. 1.8 _____

26. $5\frac{2}{3}$ _____

27. 48 _____



Mixed Review

Write the reciprocal of the number.

28. $\frac{6}{7}$ _____

29. $1\frac{4}{7}$ _____

30. 12 _____

31. $1\frac{1}{7}$ _____

Find the quotient. Write the answer in simplest form.

32. $\frac{2}{5} \div \frac{1}{3}$ _____

33. $6 \div \frac{8}{9}$ _____

34. $3\frac{3}{8} \div 1\frac{4}{5}$ _____

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LESSON 11.3

Compare and Order Rational Numbers

Compare. Write $<$ or $>$ for ○.

1. $0.25 \bigcirc 0.4$ _____

2. $\frac{3}{8} \bigcirc 0.2$ _____

3. $^{-}2\frac{1}{5} \bigcirc {}^{-}2.3$ _____

4. $\frac{-5}{8} \bigcirc \frac{-3}{10}$ _____

5. $5 \bigcirc {}^{-}2$ _____

6. $\frac{-7}{10} \bigcirc \frac{4}{5}$ _____

7. $^{-}2.6 \bigcirc {}^{-}2.62$ _____

8. $\frac{3}{4} \bigcirc \frac{5}{6}$ _____

9. $3.8 + 2.2 \bigcirc 2\frac{1}{6} + 3\frac{4}{5}$ _____

10. $3\frac{1}{2} \times 2 \bigcirc 4\frac{1}{3} + 2.8$ _____

11. $7\frac{1}{4} + 3\frac{1}{3} \bigcirc 1\frac{5}{6} \times 6$ _____

Order the rational numbers from least to greatest.

12. $2.9, {}^{-}1.7, \frac{9}{3}, \frac{3}{4}$ _____

13. $\frac{-1}{5}, \frac{1}{9}, \frac{1}{10}, {}^{-}0.1$ _____

14. $0, 0.8, {}^{-}1.4, {}^{-}0.6, \frac{3}{5}$ _____

15. $8.7, {}^{-}9.2, {}^{-}7.3, 6.2, 6\frac{1}{2}, 8\frac{7}{8}$ _____

16. $4\frac{1}{4}, 4\frac{3}{5}, 4.9, 4.08, 0.49$ _____

Order the rational numbers from greatest to least.

17. $7.3, 6, \frac{7}{8}, 2$ _____

18. $2.4, {}^{-}1.4, {}^{-}3, 4.7, 3.8$ _____

19. $\frac{2}{5}, \frac{1}{10}, 0.5, {}^{-}0.6, 0.42$ _____

Mixed Review

Find the LCM of each set of numbers.

20. 4, 10 _____

21. 7, 12 _____

22. 8, 18, 24 _____

23. 5, 15, 20 _____

Find the GCF of each set of numbers.

24. 12, 20 _____

25. 16, 42 _____

26. 15, 50, 75 _____

27. 36, 54, 72 _____

Find a pair of numbers for each set of conditions.

28. The LCM is 30. The GCF is 2. _____

29. The LCM is 36. The GCF is 6. _____

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LESSON 11.4

Problem Solving Strategy: Use Logical Reasoning

Solve the problems by using logical reasonings.

1. Tamara, Alex, Elena, and Fred entered their dogs in the county dog show. The dogs were a terrier, a setter, a golden retriever, and a Great Dane. Neither girl owned the Great Dane. Neither boy entered a setter. Tamara owns a golden retriever. What breed of dog did Elena enter in the show?

_____

2. Bobby, Ken, Sam, and Ayesha each participate in one sport at school. They play softball, football, basketball, and soccer. Ayesha plays first base. Ken does not play football. If Sam plays soccer, what sport does Bobby participate in?

_____

3. Adel, James, Erica, and An were comparing how far they lived from school. An lives only $\frac{1}{3}$ as far as Adel. James lives twice as far as Erica and 4 times as far as An. If Adel lives 9 blocks from school, how far does Erica live?

_____

4. Ahmed looked over his math homework problems. He saw that $\frac{1}{2}$ of the problems were about fractions, $\frac{1}{3}$ were about decimals, and the rest were about geometry. If there were 4 geometry problems, how many problems did he have in all?

_____

5. Robert, Stanley, and Keith are brothers. Robert is 4 years younger than Stanley. Keith is 3 years older than Robert. Robert is 9 years older than his cousin Richard. If Richard is 11, how old is each brother?

_____

6. Adam, Carin, Dana, and Juanita are lined up for a photograph. As the photographer looks at them, Juanita is to the right of Carin. Adam is on one end. Dana is between Carin and Adam. Give their order from left to right.

_____

Mixed Review

Determine whether each number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10.

7. 125 _____ **8.** 336 _____ **9.** 1,010 _____ **10.** 249 _____ **11.** 9,072 _____

Multiply. Write the answer in simplest form.

12. $\frac{1}{2} \times \frac{2}{5}$ _____ **13.** $\frac{3}{5} \times \frac{1}{3}$ _____ **14.** $\frac{5}{6} \times \frac{1}{4}$ _____ **15.** $\frac{3}{4} \times \frac{5}{6}$ _____

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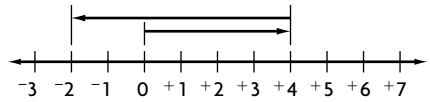
LESSON 12.2

Add Integers

Write the addition problem modeled on the number line.

1. 

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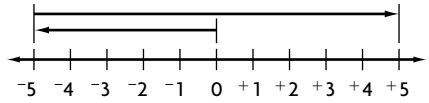
2. 

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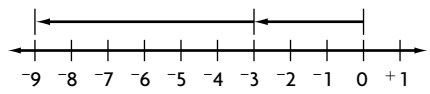
3. 

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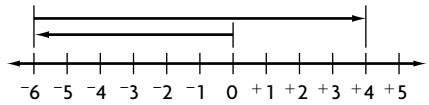
4. 

_____

Find the sum.

5. $^{-}8 + {}^{-}5$ _____

6. $^{+}14 + {}^{-}9$ _____

7. $^{-}20 + {}^{-}4$ _____

8. $^{+}31 + {}^{-}12$ _____

9. $^{-}14 + {}^{-}16$ _____

10. $^{+}35 + {}^{+}17$ _____

11. $^{-}23 + {}^{-}9$ _____

12. $^{+}39 + {}^{-}15$ _____

13. $^{-}59 + {}^{-}22$ _____

14. $^{+}47 + {}^{-}33$ _____

15. $^{-}37 + {}^{-}26$ _____

16. $^{+}49 + {}^{-}20$ _____

17. $^{-}19 + {}^{-}42$ _____

18. $^{+}17 + {}^{-}12$ _____

19. $^{+}44 + {}^{-}17$ _____

20. $^{-}64 + {}^{-}38$ _____

21. $^{-}23 + {}^{+}50$ _____

22. $^{-}31 + {}^{-}43$ _____

23. $^{+}85 + {}^{-}15$ _____

24. $^{-}59 + {}^{-}21$ _____

Mixed Review

Write the opposite of each number.

25. $^{-}12$ _____

26. $^{+}81$ _____

27. $^{-}54$ _____

28. $^{-}17$ _____

Find the absolute value.

29. $|{}^{-}45|$ _____

30. $|{}^{+}101|$ _____

31. $|{}^{+}310|$ _____

32. $|{}^{-}287|$ _____

Write each rational number in the form $\frac{a}{b}$.

33. $6\frac{7}{10}$ _____

34. $^{-}9\frac{1}{8}$ _____

35. $^{-}1.59$ _____

36. 4.03 _____

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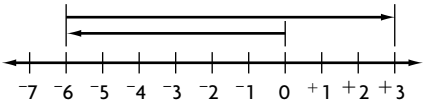
LESSON 12.4

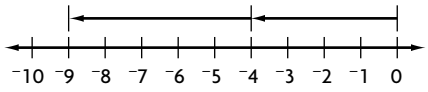
Subtract Integers

Use the number line to find the difference.

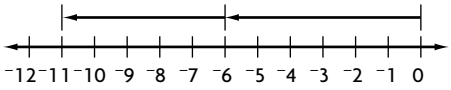
1. $^-6 - {}^-9 = {}^-6 + {}^+9 =$ _____



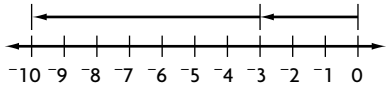
2. $^-4 - {}^+5 = {}^-4 + {}^-5 =$ _____



3. $^-6 - {}^+5 = {}^-6 + {}^-5 =$ _____



4. $^-3 - {}^+7 = {}^-3 + {}^-7 =$ _____



Find the difference.

5. $^+8 - {}^-9$ _____

6. $^-14 - {}^-6$ _____

7. $^+12 - {}^-9$ _____

8. $^+6 - {}^-2$ _____

9. $^+10 - {}^-3$ _____

10. $^+11 - {}^-9$ _____

11. $^-14 - {}^-7$ _____

12. $^-9 - {}^+3$ _____

13. $^-11 - {}^-9$ _____

14. $^-9 - {}^+4$ _____

15. $^-13 - {}^+5$ _____

16. $^-13 - {}^+2$ _____

17. $^-19 - {}^+7$ _____

18. $^+16 - {}^+12$ _____

19. $^+17 - {}^-11$ _____

20. $^-18 - {}^-9$ _____

21. $^+15 - {}^-14$ _____

22. $^-19 - {}^+13$ _____

23. $^-21 - {}^+6$ _____

24. $^-20 - {}^-8$ _____

Mixed Review

Find a rational number between the two given numbers.

25. 8.3 and 8.26 _____

26. $^-4\frac{1}{2}$ and $^-4\frac{1}{3}$ _____

27. $\frac{^-3}{8}$ and $^-0.4$ _____

28. $^-1.9$ and $^-1\frac{3}{4}$ _____

Compare. Write $<$ or $>$ for each ○.

29. $\frac{2}{3} \bigcirc \frac{4}{5}$ _____

30. $^-1.4 \bigcirc {}^-1\frac{3}{8}$ _____

31. $\frac{3}{4} \bigcirc 0.7$ _____

32. $^-5.5 \bigcirc {}^-5.6$ _____

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LESSON 13.2

Algebra: Multiply Integers

Find the product.

1. $^{-}7 \times 3$ _____
2. $^{-}4 \times {}^{-}4$ _____
3. $9 \times {}^{-}2$ _____
4. $^{-}8 \times 6$ _____
5. $^{-}4 \times 9$ _____
6. $12 \times {}^{-}3$ _____
7. $^{-}3 \times {}^{-}8$ _____
8. $5 \times {}^{-}5$ _____
9. $8 \times {}^{-}2$ _____
10. $^{-}6 \times {}^{-}9$ _____
11. $3 \times {}^{-}11$ _____
12. $^{-}10 \times {}^{-}10$ _____
13. $^{-}20 \times {}^{-}4$ _____
14. $14 \times {}^{-}7$ _____
15. $^{-}25 \times 4$ _____
16. $2 \times {}^{-}30$ _____
17. $32 \times {}^{-}7$ _____
18. $^{-}45 \times {}^{-}2$ _____
19. $16 \times {}^{-}9$ _____
20. $^{-}18 \times {}^{-}5$ _____
21. $^{-}3 \times {}^{-}15$ _____
22. $^{-}12 \times 5$ _____
23. $3 \times {}^{-}10$ _____
24. $^{-}9 \times {}^{-}9$ _____

ALGEBRA Use mental math to find the value of y.

25. $y \times 4 = {}^{-}28$ _____
26. $y \times {}^{-}2 = {}^{-}16$ _____
27. $^{-}5 \times y = 30$ _____
28. $9 \times y = 45$ _____
29. $y \times 3 = {}^{-}45$ _____
30. $y \times {}^{-}12 = 24$ _____

Mixed Review

Find the sum.

31. $7 + {}^{-}3$ _____
32. $^{-}10 + 5$ _____
33. $4 + {}^{-}9$ _____
34. $^{-}13 + {}^{-}7$ _____

Write the decimal as a fraction.

35. 0.7 _____
36. 0.15 _____
37. 0.03 _____
38. 0.58 _____

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Name _____

LESSON 13.3

Divide Integers

Find the quotient.

1. $^{-}10 \div 5$ _____
2. $36 \div {}^{-}9$ _____
3. $^{-}44 \div {}^{-}11$ _____
4. $50 \div {}^{-}2$ _____
5. $^{-}12 \div 4$ _____
6. $35 \div {}^{-}7$ _____
7. $^{-}44 \div {}^{-}4$ _____
8. $50 \div {}^{-}5$ _____
9. $18 \div {}^{-}3$ _____
10. $-42 \div {}^{-}7$ _____
11. $45 \div {}^{-}5$ _____
12. $15 \div 3$ _____
13. $^{-}24 \div {}^{-}8$ _____
14. $21 \div {}^{-}3$ _____
15. $^{-}60 \div {}^{-}6$ _____
16. $^{-}32 \div 8$ _____
17. $55 \div {}^{-}5$ _____
18. $^{-}36 \div {}^{-}9$ _____
19. $80 \div {}^{-}4$ _____
20. $51 \div {}^{-}3$ _____
21. $^{-}99 \div {}^{-}11$ _____
22. $56 \div 8$ _____
23. $^{-}100 \div 5$ _____
24. $^{-}200 \div {}^{-}4$ _____
25. $^{-}75 \div 3$ _____
26. $250 \div {}^{-}25$ _____
27. $^{-}90 \div {}^{-}18$ _____
28. $^{-}180 \div 60$ _____
29. $^{-}100 \div {}^{-}25$ _____
30. $^{-}125 \div 5$ _____
31. $120 \div {}^{-}4$ _____
32. $^{-}96 \div 16$ _____
33. $105 \div {}^{-}7$ _____
34. $^{-}84 \div 12$ _____
35. $150 \div {}^{-}3$ _____
36. $^{-}125 \div 25$ _____
37. $^{-}180 \div {}^{-}90$ _____
38. $100 \div {}^{-}4$ _____
39. $^{-}90 \div {}^{-}5$ _____
40. $^{-}150 \div 50$ _____

ALGEBRA Use mental math to find the value of x.

41. $x \div 5 = {}^{-}10$ _____
42. $27 \div x = {}^{-}3$ _____
43. $x \div {}^{-}15 = {}^{-}4$ _____

Mixed Review

Multiply. Write the answer in simplest form.

44. $\frac{2}{3} \times \frac{3}{4}$ _____
45. $\frac{1}{8} \times \frac{2}{5}$ _____
46. $\frac{3}{7} \times \frac{1}{4}$ _____
47. $\frac{2}{9} \times \frac{3}{5}$ _____

Find the difference.

48. $12 - {}^{-}9$ _____
49. $^{-}18 - 6$ _____
50. $4 - 10$ _____
51. $^{-}8 - {}^{-}15$ _____

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Name _____

Combine Operations with Integers

Evaluate the expression.

1. $^{-}3 + 8 \times 2 - 1$

2. $(5 - 12) \times 6 + 4$

3. $6 \div 2 \times 4 + (4 - {}^{-}2)$

4. $({}^{-}8 + 8) + 12 \div {}^{-}6$

5. $3^2 - {}^{-}2 + (7 - 9)$

6. $4 + 2^3 - 7 + 1$

7. $18 \div 6 + {}^{-}1 \times 2$

8. $7 \times 6 - {}^{-}4 + 4^2$

9. $(6^2 - 3^2) \times 2 - {}^{-}7$

10. $3^3 + 2 \times {}^{-}8 - 5$

11. $({}^{-}10 - {}^{-}6) + ({}^{-}1 + 8)$

12. $({}^{-}6 \times {}^{-}4) \times ({}^{-}3 + 7)$

Use a property to simplify the expression. Then evaluate the expression and identify the property you used.

13. $^{-}9 + 23 + 29$

14. $({}^{-}203 + 18) + {}^{-}18$

15. $^{-}79 + {}^{-}187 + {}^{-}21$

16. $13 + (47 + {}^{-}3)$

17. $^{-}9 + 16 + 9$

18. $83 + (17 + {}^{-}18)$

Mixed Review

Find the sum. Write the answer in simplest form.

19. $\frac{1}{4} + \frac{2}{3}$

20. $\frac{3}{8} + \frac{1}{4}$

21. $\frac{5}{6} + \frac{2}{3}$

22. $\frac{1}{2} + \frac{3}{8}$

Use division to find the prime factors. Write the prime factorization.

23. 30

24. 48

25. 36

26. 35

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Name _____ LESSON 14.1

Write Expressions

Write an algebraic expression for the word expression.

1. 47 less than the product of y and 7

2. $\frac{3}{4}$ added to 8 times w

3. q times 11 take away the product of 6 and t

4. the difference between a and 4 divided by the sum of b and 9

5. the product of m and 15 divided by the sum of n and 50

6. k times 12 divided by the product of d and 3

Write a word expression for each.

7. $15 - (r + s)$

8. $\frac{g + 5}{t}$

9. $k \times m + 1.5$

10. $\frac{20}{bc}$

11. $7.5n + xy$

12. $de - \frac{1}{2}$

Mixed Review

Find the quotient. Write the answer in simplest form.

13. $\frac{2}{3} \div \frac{1}{4}$ _____

14. $\frac{4}{5} \div \frac{2}{15}$ _____

15. $9 \div \frac{3}{8}$ _____

16. $\frac{3}{7} \div \frac{2}{5}$ _____

Find the difference.

17. $7 - {}^{-}10$ _____

18. ${}^{-}6 - 5$ _____

19. ${}^{-}12 - {}^{-}3$ _____

20. $14 - {}^{-}18$ _____

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Name _____

Evaluate Expressions

Evaluate the expression for $x = {}^{-}5, {}^{-}1, 0$, and 3.

1. $4x - 2$ _____

2. $13 - 2x$ _____

3. ${}^{-}7 + 5x$ _____

4. $\frac{3}{4} - 3x$ _____

5. $6 + 10(x - 3)$ _____

6. $\frac{12}{x - 1} - 8$ _____

7. $25 - x^2$ _____

8. $6x \div {}^{-}3$ _____

9. ${}^{-}4 \times (x + 5)$ _____

Simplify the expression.
Then evaluate the expression for the given value of the variable.

10. $4x - x + 21$ for $x = 5$ _____

11. $k - 7k - 11$ for $k = {}^{-}3$ _____

12. $6a + 3b + 27 - 2a$ for $a = {}^{-}7$ and $b = 6$ _____

13. $m + 30 - 2n + 4m$ for $m = {}^{-}6$ and $n = 15$ _____

Evaluate the expression for the given value of the variables

14. $4f \times (g - h)$ for $f = {}^{-}2$, $g = {}^{-}10$, and $h = 12$ _____

15. $r \times (6s + 2t)$ for $r = 4$, $s = 5$, and $t = {}^{-}9$ _____

Mixed Review

Compare. Write $<$ or $>$.

16. ${}^{-}1.50$ ____ ${}^{-}1.55$

17. $\frac{-2}{3}$ ____ $\frac{1}{3}$

18. $.80$ ____ $\frac{3}{4}$

19. $\frac{-2}{7}$ ____ $\frac{-5}{6}$

Find the product.

20. ${}^{-}20 \times 6$ _____

21. ${}^{-}12 \times 8$ _____

22. $7 \times {}^{-}11$ _____

23. ${}^{-}15 \times 15$ _____

24. ${}^{-}7 \times {}^{-}40$ _____

25. ${}^{-}35 \times 0$ _____

26. $9 \times {}^{-}12$ _____

27. ${}^{-}10 \times {}^{-}11$ _____

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Name _____

LESSON 14.4

Expressions with Squares and Square Roots

Evaluate the expression.

1. $\sqrt{16} + 9$ _____

2. $34 - \sqrt{36}$ _____

3. $11 + \sqrt{49} - 3$ _____

4. $64 - \sqrt{64}$ _____

5. $2^2 + 10 + \sqrt{25}$ _____

6. $\sqrt{16} \times 3$ _____

7. $\sqrt{64} \div 8 \times 1$ _____

8. $9^2 \div 9 + 9$ _____

9. $12^2 \div 6 \times 3$ _____

10. $51 - \sqrt{64} \times 6$ _____

11. $(12 + \sqrt{4}) - 14$ _____

12. $5 \times (7 - 2^2)$ _____

13. $\sqrt{121} + 3 \times 5^2$ _____

14. $^{-}6(\sqrt{81} - \sqrt{64})$ _____

15. $196 \div \sqrt{4} \times 2$ _____

Evaluate the expression for the given value of the variable.

16. $x^2 + \sqrt{64}$ for $x = 6$ _____

17. $\sqrt{121} - \sqrt{m} + 5$ for $m = 100$ _____

18. $(h + 3) - 55$ for $h = \sqrt{49}$ _____

19. $\sqrt{4} \times y^2 + 3$ for $y = 5$ _____

20. $(r^2 + \sqrt{16}) \div 2$ for $r = 8$ _____

21. $7a^2 - \sqrt{a}$ for $a = 4$ _____

Mixed Review

Find the product. Write the answer in simplest form.

22. $\frac{3}{5} \times \frac{2}{3}$ _____

23. $\frac{5}{8} \times \frac{2}{5}$ _____

24. $\frac{1}{2} \times \frac{3}{4}$ _____

25. $\frac{2}{3} \times \frac{1}{6}$ _____

Write each rational number in the form $\frac{a}{b}$.

26. $1\frac{3}{4}$ _____

27. 0.7 _____

28. 0.75 _____

29. 2.25 _____

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Name _____ LESSON 15.1

Connect Words and Equations

Write an equation for the word sentence.

1. 12 less than a number equals 15.

_____

2. The quotient of a number and 7 is 63.

_____

3. 5 more than a number is 31.

_____

4. 6 less than a number r is 16.

_____

5. 3 times the price p equals \$9.45

_____

6. 4 times the number of cars is 84.

_____

7. A number x divided by 2.5 is 3.5.

_____

8. 12 fewer than a number m is $17\frac{1}{2}$

_____

9. 5 times the number of students in the class is 155.

_____

10. The number of auditorium seats divided by 3 is 174.

_____

11. Eight more than your test score is 100.

_____

12. The difference between a number k and $^{-}7$ is 12.

_____

Mixed Review

Rewrite the problem so that the divisor is a whole number.

13. $9.2 \div 5.4$ _____

14. $7.3 \div 2.6$ _____

15. $19.12 \div 3.4$ _____

16. $67.3 \div 0.18$ _____

Write the fraction in simplest form.

17. $\frac{7}{21}$ _____

18. $\frac{16}{30}$ _____

19. $\frac{9}{24}$ _____

20. $\frac{15}{50}$ _____

21. $\frac{20}{45}$ _____

22. $\frac{12}{18}$ _____

23. $\frac{10}{15}$ _____

24. $\frac{24}{36}$ _____

25. $\frac{33}{55}$ _____

26. $\frac{16}{24}$ _____

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Name _____ LESSON 15.3

Solve Addition Equations

Solve and check. Name the property.

1. $x + 9 = 14$ _____

2. $m + 3.5 = 9$ _____

3. $12 + w = 23$ _____

4. $t + 8.7 = 16.3$ _____

5. $b + 4\frac{1}{3} = 11$ _____

6. $15 = e + 11.2$ _____

7. $n + 6\frac{3}{5} = 9$ _____

8. $18.9 + c = 31.2$ _____

9. $24.6 = 15.7 + h$ _____

10. $14\frac{1}{2} + d = 22$ _____

11. $5\frac{1}{4} = 2\frac{1}{2} + z$ _____

12. $k + 17.8 = 42.1$ _____

13. $9.3 = 5.9 + q$ _____

14. $51 = 29.8 + p$ _____

15. $j + 4 = {}^{-}7$ _____

16. $8.6 + s = 14.3$ _____

17. ${}^{-}3 = y + 6$ _____

18. $17\frac{3}{5} = a + 8\frac{1}{2}$ _____

Mixed Review

Estimate.

19. $67.9 - 39.6$ _____

20. $109.4 \div 22$ _____

21. $\$7.78 + \$6.19$ _____

22. 1.9×15.1 _____

23. $3 \times \$51.99$ _____

24. $202.1 - 58.3$ _____

25. $6.71 + 19.03$ _____

26. $599.2 \div 3.9$ _____

Write the percent or decimal.

27. 16% _____ **28.** 7% _____ **29.** 0.65 _____ **30.** 19% _____ **31.** 0.54 _____

32. 0.02 _____ **33.** 10% _____ **34.** 0.42 _____ **35.** 90% _____ **36.** 0.09 _____

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Name _____

LESSON 15.4

Solve Subtraction Equations

Solve and check. .

1. $t - 1 = 9$

2. $12 = x - 3$

3. $b - 6 = 2$

4. $4 = a - 3$

5. $y - 4 = 19$

6. $1 = n - 50$

7. $c - 1.5 = 7$

8. $4.4 = h - 13.4$

9. $k - 7.3 = 12.7$

10. $4\frac{1}{3} = z - \frac{2}{3}$

11. $f - 8\frac{3}{4} = 5$

12. $10\frac{5}{8} = w - 8$

13. $36.5 = g - 18.6$

14. $e - 2\frac{1}{3} = 4\frac{1}{2}$

15. $42 = v - 3\frac{2}{9}$

16. $m - 31 = 2\frac{1}{4}$

17. $6.8 = p - 14.5$

18. $s - 1.9 = 5.4$

Mixed Review

Find the product.

19. $10 \times {}^{-}5$

20. ${}^{-}9 \times {}^{-}9$

21. ${}^{-}3 \times 12$

22. ${}^{-}11 \times {}^{-}4$

Find the sum or difference. Write the answer in simplest form.

23. $4\frac{2}{3} + 7\frac{3}{4}$

24. $8\frac{5}{8} - 1\frac{2}{5}$

25. $2\frac{5}{6} + 3\frac{1}{3}$

26. $3\frac{1}{8} - 1\frac{3}{4}$

27. $1\frac{3}{4} - 1\frac{1}{6}$

28. $3\frac{1}{2} + 4\frac{3}{5}$

29. $5\frac{5}{7} - 1\frac{1}{2}$

30. $5\frac{1}{3} - 2\frac{5}{6}$

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Name _____ LESSON 16.2

Solve Multiplication and Division Equations

Solve and check.

1. $3y = 9$ _____
2. $4p = 24$ _____
3. $\frac{x}{2} = 7$ _____
4. $\frac{s}{3} = 5$ _____
5. $20 = 4n$ _____
6. $32 = 8k$ _____
7. $7 = \frac{a}{9}$ _____
8. $4 = \frac{m}{8}$ _____
9. $2x = 8$ _____
10. $3c = 18$ _____
11. $\frac{a}{4} = 8$ _____
12. $\frac{m}{5} = 4$ _____
13. $6 = \frac{k}{4}$ _____
14. $60 = 5y$ _____
15. $11 = \frac{b}{6}$ _____
16. $45 = 3n$ _____
17. $140 = 14g$ _____
18. $513 = \frac{w}{3}$ _____
19. $1{,}320 = 22d$ _____
20. $19 = \frac{g}{11}$ _____

Solve and check. HINT: Write each mixed number as a fraction.

21. $\frac{12}{17} = \frac{k}{68}$ _____
22. $\frac{x}{7} = 9\frac{1}{3}$ _____
23. $\frac{5}{8}n = 3\frac{3}{4}$ _____
24. $\frac{2}{3}m = 2\frac{1}{6}$ _____

Mixed Review

Solve and check.

25. $a - 11 = 27$ _____
26. $18.4 = b - 3.69$ _____
27. $c - 6\frac{1}{3} = 14\frac{2}{3}$ _____
28. $1\frac{5}{8} + n = 5\frac{1}{4}$ _____

Multiply. Write the answer in simplest form.

29. $2\frac{1}{4} \times 3\frac{2}{3}$ _____
30. $9\frac{1}{5} \times 1\frac{3}{4}$ _____
31. $4\frac{3}{8} \times 2\frac{2}{5}$ _____
32. $2\frac{2}{5} \times 1\frac{2}{3}$ _____
33. $6\frac{3}{5} \times 2\frac{1}{3}$ _____
34. $2\frac{2}{3} \times 3\frac{3}{8}$ _____
35. $1\frac{1}{2} \times 5\frac{5}{6}$ _____
36. $1\frac{1}{4} \times 3\frac{1}{5}$ _____

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Name _____ LESSON 16.3

Use Formulas

Use the formula $d = rt$ to complete.

1. $d =$ _____
$r = 20$ mi per hr
$t = 4$ hr

2. $d =$ _____
$r = 17$ ft per sec
$t = 42$ sec

3. $d =$ _____
$r = 9.8$ km per hr
$t = 5.3$ hr

4. $d = 75$ mi
$r =$ _____
$t = 3$ hr

5. $d = 1{,}320$ km
$r =$ _____
$t = 220$ min

6. $d = 99$ ft
$r =$ _____
$t = 11$ sec

7. $d = 605$ mi
$r = 55$ mi per hr
$t =$ _____

8. $d = 336$ ft
$r = 28$ ft per sec
$t =$ _____

9. $d = 500$ ft
$r = 25$ ft per min
$t =$ _____

Convert the temperature to degrees Fahrenheit. Write your answer as a decimal.

10. 30°C	**11.** 25°C	**12.** 50°C	**13.** 13°C	**14.** 3°C	**15.** 60°C
_____	_____	_____	_____	_____	_____
16. 22°C	**17.** 54°C	**18.** 7°C	**19.** 100°C	**20.** 15°C	**21.** 0°C
_____	_____	_____	_____	_____	_____

Convert the temperature to degrees Celsius. Write your answer as a decimal and round to the nearest tenth of a degree.

22. 71°F	**23.** 50°F	**24.** 140°F	**25.** 90°F	**26.** 45°F	**27.** 121°F
_____	_____	_____	_____	_____	_____
28. 32°F	**29.** 49°F	**30.** 96°F	**31.** 130°F	**32.** 113°F	**33.** 86°F
_____	_____	_____	_____	_____	_____

Mixed Review

Write each rational number in the form $\frac{a}{b}$.

34. $2\frac{1}{3}$	**35.** 5.1	**36.** $^{-}8\frac{2}{5}$	**37.** $^{-}1.667$
_____	_____	_____	_____

Estimate.

38. 5.4×19.7	**39.** $41.6 \div 6.8$	**40.** $187.51 - 90.4$	**41.** $276.7 + 389.5$
_____	_____	_____	_____

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Name _____ LESSON 16.5

Problem-Solving Strategy: Work Backward

Solve the problem by working backward.

1. Keesha went to the movies with her brother, Merle, and spent $15.00. The tickets cost $4.50 each. She bought a box of popcorn and 2 drinks. The drinks cost $1.50 each. How much did the popcorn cost?

_____

2. Alex brought 48 cookies to school to celebrate his birthday. He gave 9 to teachers. He then shared equally the remaining cookies with his 18 classmates. How many cookies remained?

_____

3. An engineer is checking wells on a hillside. He starts at his van and walks up 100 m to Well 1. He climbs down 50 m to Well 2. Then he climbs up 200 m to Well 3, which is 280 m above Well 4. How high is each well from the engineer's van?

_____

4. Karen had a bag of oats. She used $1\frac{1}{4}$ c in a meatloaf and $3\frac{1}{4}$ c to make cookies. To make granola, Karen used twice the amount of oats she used to make cookies. If there are 4 c of oats left over, how much oats did Karen start with?

_____

5. Maya paid $174 for a car she rented for 4 days. The rate was $36 per day. Maya also had to pay $0.20 per mi after the first 200 mi driven. How many miles did Maya drive the rented car?

_____

6. Miguel poured some punch into the pitcher. Tim added 16 oz more. Bill then added enough punch to double the amount in the pitcher. The pitcher contains 72 oz. How much punch did Miguel pour into the pitcher?

_____

Mixed Review

Write an algebraic expression for the word expression.

7. 4.7 more than 5 times x _____

8. the quotient of t and 4.2 less 5 _____

9. the product of p, $4n$ and m. _____

Find the product.

10. $^{-}9 \times 5$ _____

11. $15 \times {}^{-}3$ _____

12. $^{-}8 \times {}^{-}6$ _____

13. $22 \times {}^{-}7$ _____

14. $^{-}12 \times {}^{-}5$ _____

15. $^{-}105 \times 3$ _____

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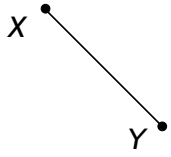
Name _____

LESSON 17.1

Points, Lines, and Planes

Name the geometric figure.

1. 

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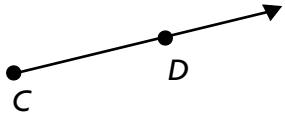
2. 

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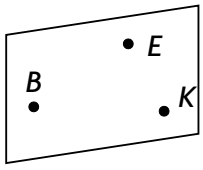
3.

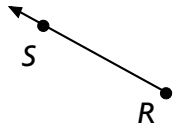
_____

4. 

_____

5.

_____

6. 

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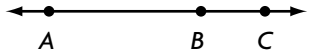
For Exercises 7–9, use the figure at the right.



7. Name three points.

_____

8. Name four different rays.

_____

9. Name six different line segments.

_____

Mixed Review

Solve and check.

10. $\frac{n}{5} = 40$ _____

11. $7x = 63$ _____

12. $^{-}25 = \frac{k}{6}$ _____

13. $4.7 = \frac{d}{2.1}$ _____

14. $84 = 7c$ _____

15. $s \div 1.05 = 800$ _____

16. $^{-}3m = {}^{-}450$ _____

17. $129.5 = {}^{-}7g$ _____

Write the sum or difference. Write the answer in simplest form.

18. $\frac{2}{3} + \frac{1}{4}$ _____

19. $\frac{3}{5} - \frac{1}{2}$ _____

20. $\frac{1}{8} + \frac{1}{6}$ _____

21. $\frac{5}{8} - \frac{2}{5}$ _____

22. $\frac{1}{3} - \frac{2}{9}$ _____

23. $\frac{1}{4} + \frac{3}{5}$ _____

24. $\frac{3}{4} - \frac{1}{3}$ _____

25. $\frac{3}{7} + \frac{1}{2}$ _____

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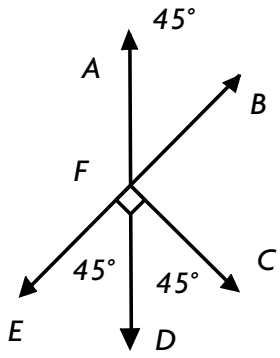
Name _____ LESSON 17.3

Angle Relationships

For 1–4 use the figure.



1. Name two angles adjacent to $\angle AFB$.

_____

2. Name an angle vertical to $\angle EFD$.

_____

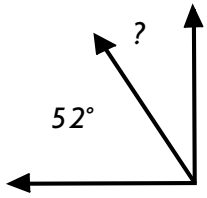
3. Name an angle that is complementary to $\angle DFC$.

_____

4. Name two angles that are supplementary to $\angle AFE$.

_____

Find the unknown angle measure. The angles are complementary.

5. 

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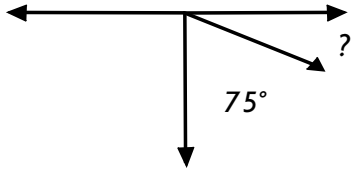
6. 

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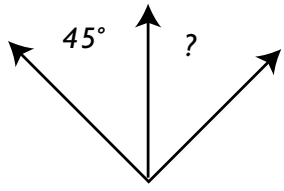
7. 

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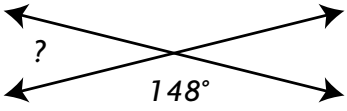
8. 

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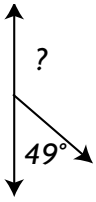
9. 

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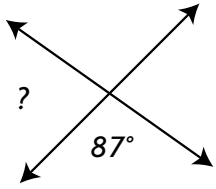
10. 

_____

Mixed Review

Solve and check.

11. $y + 9 = 14$ _____

12. $5 + c = {}^{-}7$ _____

13. $4.3 = x + 1.8$ _____

14. $p + 9\frac{1}{3} = 14\frac{2}{3}$ _____

Write the prime factorization in exponent form.

15. 24 _____

16. 144 _____

17. 360 _____

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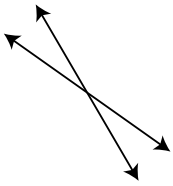
Name _____

Classifying Lines

Classify the lines.

1. 

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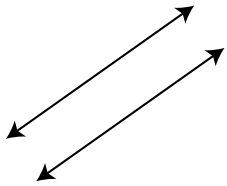
2. 

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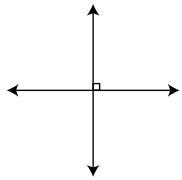
3. 

_____

The figure at the right is a rectangular prism.

4. Name all lines that are parallel to $\overleftrightarrow{TW}$.

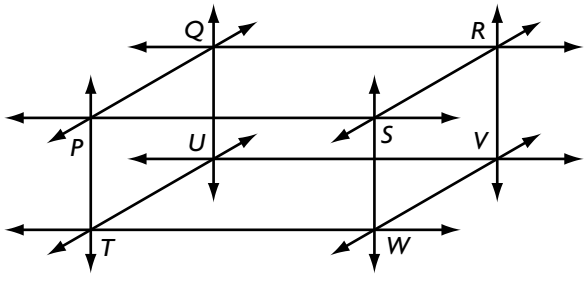
_____

5. Name all the lines that intersect $\overleftrightarrow{PQ}$.

_____

6. Name all the lines that are perpendicular to and intersect $\overleftrightarrow{UQ}$.

_____



7. Name all the lines that are parallel to RV. _____

8. Is line $\overleftrightarrow{PS}$ perpendicular to line $\overleftrightarrow{QU}$?. _____

9. Is line $\overleftrightarrow{PQ}$ parallel to line $\overleftrightarrow{UV}$?. _____

Mixed Review

Find the product.

10. $3 \times {}^{-}9$ _____ **11.** ${}^{-}12 \times 8$ _____ **12.** ${}^{-}4 \times {}^{-}10$ _____ **13.** ${}^{-}6 \times 15$ _____

14. ${}^{-}11 \times {}^{-}10$ _____ **15.** ${}^{-}5 \times 20$ _____ **16.** ${}^{-}9 \times 8$ _____ **17.** $7 \times {}^{-}50$ _____

Add or subtract.

18. $12.29 - 1.07$ _____ **19.** $8.791 + 0.45$ _____

20. $0.602 - 0.060$ _____ **21.** $527.4 + 43.685$ _____

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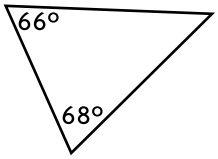
Name _____

LESSON 18.1

Triangles

Find the measure of the angle and classify the triangle.

1.



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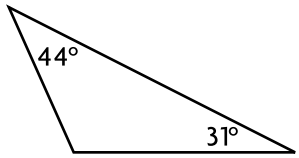
2.



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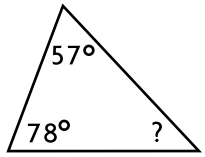
3.



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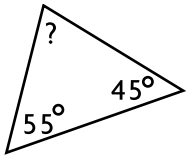
4.



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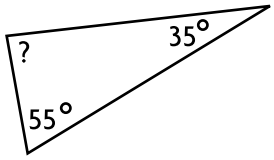
5.



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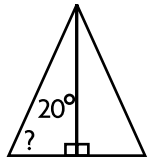
6.



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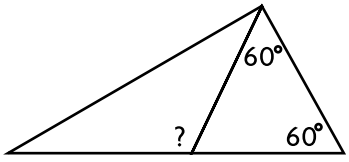
7.



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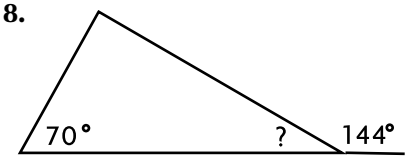
8.



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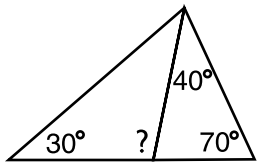
9.



_____

For 10–17, use the figure at the right. Line *AB* is parallel to line *CD*.
Find the measure of each angle.

10. < 1 _____

11. < 2 _____

12. < 3 _____

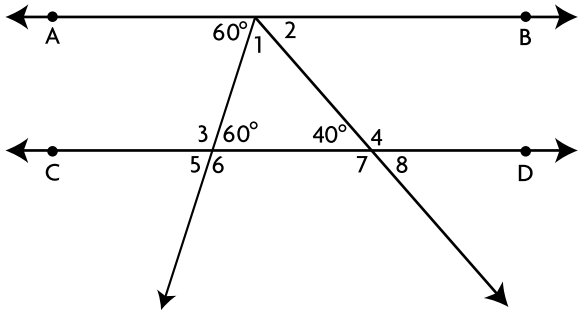
13. < 4 _____

14. < 5 _____

15. < 6 _____

16. < 7 _____

17. < 8 _____



Mixed Review

Evaluate.

18. ${}^{+}4 - {}^{-}6 - {}^{+}10$ _____

19. ${}^{-}3 - {}^{+}2 - {}^{-}4$ _____

20. ${}^{-}8 - {}^{-}5 - {}^{+}7$ _____

Evaluate the expression.

21. ${}^{-}5(\sqrt{64} - 3)$ _____

22. $3^2 + \sqrt{81}$ _____

23. $\sqrt{100} \div 5 \times 2^2$ _____

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Name _____

LESSON 18.2

Problem Solving Strategy: Find a Pattern

Solve the problem by finding a pattern.

1. The Auto Stop is advertising a special sale: buy 3 cans of motor oil, get 1 can free. How many cans should you buy in order to get 36 cans of motor oil?

_____

2. The Auto Stop charges $2.09 for a can of motor oil. Adam spends $37.62 on oil during the "buy 3 cans, get 1 free" sale. How many cans of oil did he get in all?

_____

3. The school cafeteria serves both ice cream and apples for dessert. Twenty-five students choose ice cream for every 6 students who choose apples. In one week, the cafeteria served 600 ice creams. How many students chose apples?

_____

4. Barry and Cecilia are playing a number game. One of them thinks of a number pattern and gives the first six numbers. The other has to name the next number in the pattern. Barry gave Cecilia these numbers: 3, 4, 7, 11, 18, 29. Cecilia correctly gave the next number. What number did she give?

_____

5. Twenty-four students went on the school trip to the science museum. The admission price was $4.00 per student, but 1 student was admitted free for every 3 students who paid. What was the total cost?

_____

6. The floor of a 17 ft by 13 ft sun room is tiled with tiles that are 1 ft^2. The tiles alternate between black and white. If there is a black tile in one corner of the room, how many black tiles will be needed in all?

_____

Mixed Review

Use a property to simplify the expression. Then evaluate the expression and identify the property you used.

7. $^-3 + 16 + 23$ _____

8. $(24 + 37) + 63$ _____

9. $^-73 + 120 + {}^-27$ _____

Write the fraction in simplest form.

10. $\frac{14}{48}$ _____

11. $\frac{27}{45}$ _____

12. $\frac{24}{60}$ _____

13. $\frac{15}{90}$ _____

14. $\frac{20}{64}$ _____

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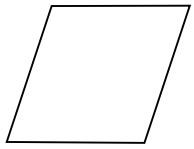
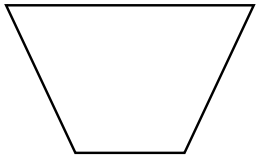
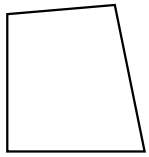
Name _____ LESSON 18.3

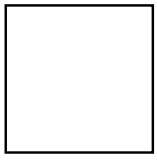
Quadrilaterals

Name the geometric figure.

1. 

2. 

3. 

4. 

5.

6.

Complete the statement, giving the most exact name for the figure.

7. A quadrilateral with exactly one pair of parallel sides is a _____

8. A polygon with four sides and no pair of parallel sides is a _____

Diagonals of a quadrilateral are lines drawn from one vertex to the opposite vertex. Complete the statements about diagonals.

9. If a quadrilateral has four congruent sides, but its diagonals are not congruent, then the quadrilateral is a _____

10. If a quadrilateral has four congruent sides and its diagonals are congruent, then the quadrilateral is a _____

Mixed Review

Evaluate each expression.

11. $3.81 \div m$ for $m = 3$ _____

12. $9w$ for $w = 4.7$ _____

13. $8.02 - r$ for $r = 5.6$ _____

Tell whether you would survey the population or use a sample. Explain.

14. You want to know how far each student in your class lives from school. _____

15. You want to know the percentage of a certain car that is red. _____

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Name _____

Draw Two-Dimensional Figures

Draw the figure. Use square dot paper or isometric dot paper.

1. an obtuse isosceles triangle

2. a quadrilateral with opposite sides congruent and no right angles

3. a quadrilateral with exactly one pair of parallel sides

4. a pentagon with three congruent sides

5. a quadrilateral with no congruent sides

6. a triangle with all sides congruent

7. a pentagon with all sides congruent

8. a quadrilateral with four right angles and two pairs of congruent sides

9. a quadrilateral with all sides congruent and four right angles

10. a hexagon with all sides congruent

11. a rectangle with all sides congruent

12. a right scalene triangle

Mixed Review

Solve and check.

13. $8.7 = 5.8 + w$ _____

14. $y + 3.6 = 17.1$ _____

15. $23.5 + c = 35.3$ _____

Compare the fractions. Write $<$, $>$, or $=$ for each.

16. $\frac{1}{3}$ _____ $\frac{5}{9}$

17. $\frac{2}{5}$ _____ $\frac{3}{10}$

18. $\frac{5}{8}$ _____ $\frac{3}{4}$

19. $\frac{6}{10}$ _____ $\frac{3}{5}$

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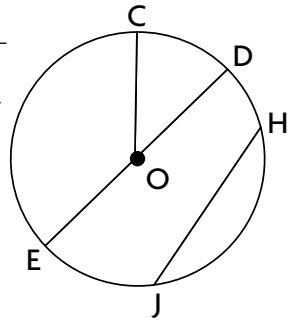
Name _____ LESSON 18.5

Circles

For 1–6 use the circle at the right. Name the given parts of the circle.

1. center _____
2. diameters _____
3. radii _____
4. arcs _____
5. chords other than diameters _____
6. How many sectors are shown in the circle? _____



For 7–12 complete the sentence by using *must, can,* or *cannot.*

7. Two radii of the same circle _____ be equal in length.
8. An arc _____ pass through the center of a circle.
9. Two chords of the same circle _____ be equal in length.
10. A chord drawn through the center of a circle _____ be the longest line segment that can be drawn in the circle.
11. Two sectors of a circle _____ be equal in area.
12. As the size of a circle increases, the relationship between the radius and the diameter _____ change.

Mixed Review

Evaluate the expression.

13. $^{-}2 + 6^2 - 3 + 9$ _____
14. $9 \div 3 \times 4 + (10 - 6)$ _____
15. $2^3 + 4 \times {}^{-}5 - 1$ _____
16. $(4 \times 6) - ({}^{-}8 \times 3)$ _____

Find the measure of each angle.

17. The complement of the angle is 18°. _____
18. The supplement of the angle is 73° _____
19. The supplement of the angle is 126° _____

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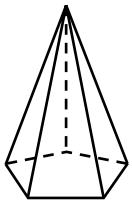
Name _____

LESSON 19.1

Types Solid Figures

Classify the figure. Is it a polyhedron?

1. 

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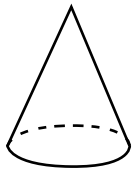
2. 

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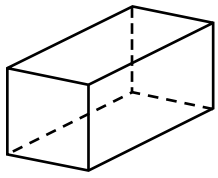
3. 

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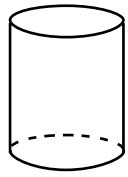
4. 

_____

Write *true* or *false* for each statement. Rewrite each false statement as a true statement.

5. A cylinder has one base.

_____

6. A cone has one flat surface.

_____

7. A cube has 8 faces

_____

8. A square pyramid is a polyhedron.

_____

9. A triangular prism has 2 congruent bases.

_____

10. The faces of a square pyramid are squares.

_____

Mixed Review

Solve and check.

11. $a - 40 = 21$

_____

12. $b - 3 = 18$

_____

13. $75 = c - 48$

_____

14. $^{-}16 = d - 9$

_____

15. $14\frac{1}{2} = e - 11\frac{1}{2}$

_____

16. $^{-}7.3 = f - 4$

_____

Write the equal factors. Then find the value.

17. 7^3

_____

18. 9^2

_____

19. 4^4

_____

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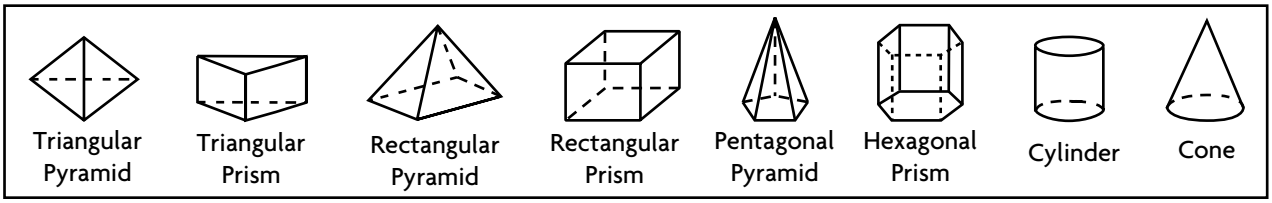
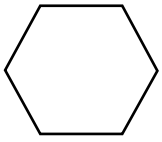
Name _____

LESSON 19.2

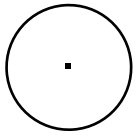
Different Views of Solid Figures



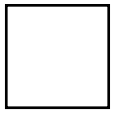
Name each solid that has the given top view. Refer to the solids in the box above.

1. 

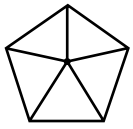
_____ _____

2. 

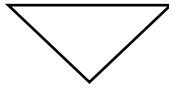
_____ _____

3. 

_____ _____

4. 

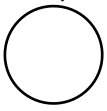
_____ _____

5. 

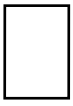
_____ _____

Name the solid figure that has the given views.

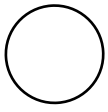
6. Top



Front

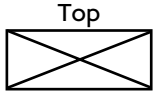


Bottom



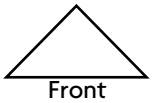
_____

7. Top



Side

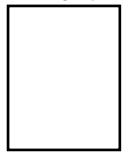
Front



_____

8. Top

Front



Bottom

_____

Mixed Review

9. $\sqrt{100} \times (4 - 3^2) + 9^2$

_____

10. $(8 - 3)^2 - (\sqrt{49} + \sqrt{4})$

_____

Write each rational number in the form $\frac{a}{b}$.

11. 4.75 _____

12. $6\frac{1}{8}$ _____

13. $^{-}6.3$ _____

14. $10\frac{1}{2}$ _____

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Name _____

LESSON 19.3

Problem-Solving Strategy: Solve a Simpler Problem

Solve by first solving a simpler problem.

1. Jon is building models of edible prisms. He uses gumdrops for vertices and licorice for edges. How many gumdrops and pieces of licorice will he need to make a prism whose base has 8 sides?

_____

_____

2. Carol wants to make a model of a prism whose base has 9 sides. She will use balls of clay for the vertices and straws for the edges. How many balls of clay and straws will she need? How many faces will her prism have?

_____

_____

3. Chloe used 30 toothpicks as edges to make a model for a prism. How many sides did the base of her prism have? How many vertices?

_____

4. Dan used 12 balls of clay as vertices to make a model for a prism. How many sides did the base of his prism have? How many edges?

_____

5. Marty built a model of a solid figure. It has 6 vertices and 9 edges. It has 5 faces. What is this figure?

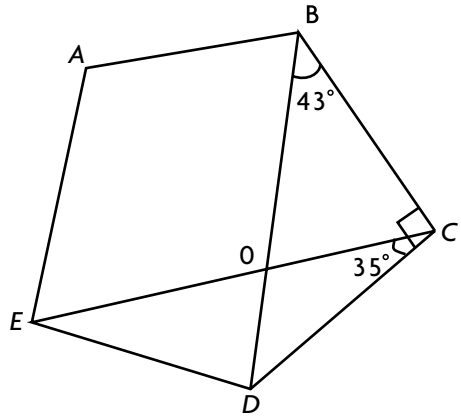
_____

6. Nancy built a model of a solid figure. It has 5 vertices and 8 edges. It has 5 faces. What is this figure?

_____

Mixed Review

For 7–12, use the figure at the right. Find the measure of each angle.



7. ∠BCO _____

8. ∠BOC _____

9. ∠ECD _____

10. ∠COD _____

11. ∠BOE _____

12. ∠ODC _____

Find the sum or difference.

13. 306 + 1,229 + 558 + 74 _____

14. 45,923 + 7,192 + 19,537 _____

15. 727,401 − 204,854 _____

16. 93,144 − 3,019 _____

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Name _____ LESSON 20.1

Ratios and Rates

Write two equivalent ratios.

1. $\frac{4}{6}$ _____

2. $\frac{12}{28}$ _____

3. $\frac{5}{20}$ _____

4. $\frac{2}{18}$ _____

5. $\frac{7}{49}$ _____

6. $\frac{2}{5}$ _____

Write each ratio in fraction form. Then find the unit rate.

7. 7 apples for $1.00 _____

8. $0.06 per page _____

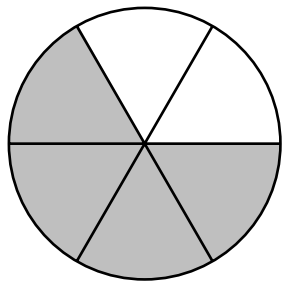
9. 24 people in 6 cars _____

10. 65 mi per 3 gal _____

11. 5 CDs for $49 _____

12. $20 per dozen tarts _____

For Exercises 13–14, use the figure at the right.



13. Find the ratio of unshaded sections to shaded sections. Then write three equivalent ratios.

_____

14. Find the ratio of shaded sections to all the sections. Then write three equivalent ratios.

_____

Find the missing term that makes the ratios equivalent.

15. $\frac{3}{7}, \frac{\square}{14}$ _____

16. 7 to 5, ☐ to 15 _____

17. 15:5, 3:☐ _____

Mixed Review

Find the quotient. Write the answer in simplest form.

18. $\frac{7}{8} \div \frac{3}{4}$ _____

19. $\frac{2}{3} \div \frac{1}{5}$ _____

20. $5 \div \frac{1}{4}$ _____

21. $2\frac{1}{2} \div \frac{3}{8}$ _____

Compare the fractions. Write $<$, $>$, or $=$ for each.

22. $\frac{-1}{3}$ _____ $\frac{-2}{3}$

23. $\frac{5}{8}$ _____ 0.75

24. 0.34 _____ $^{-}1$

25. 0.25 _____ $\frac{1}{4}$

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Name _____

LESSON 20.3

Problem-Solving Strategy

Write an Equation

Solve the problem by writing an equation.

1. A dripping faucet wastes 3 cups of water in 24 hr. How much water is wasted in 56 hours?

_____

2. A map uses the scale of 3 cm for every 10 km. If the map shows a distance of 12 cm, what is the actual distance?

_____

3. A pump empties the pool at the rate of 1,000 gal every 4 hours. How long does it take to pump out 20,000 gallons?

_____

4. Tom drinks 8 oz of water for every 3 miles he bikes. After 21 miles, how much water did he drink?

_____

5. A punch consists of 2 parts ginger ale and 3 parts orange juice. If the punch bowl contains 8 c of ginger ale, how many cups of punch are in the bowl?

_____

6. A 5-lb bag of apples contains 12 apples. What will a bag of 40 apples weigh?

_____

7. Jane can iron 4 shirts in 1 hr. How long will it take her to iron 10 shirts?

_____

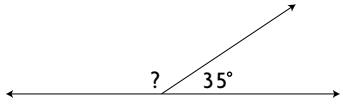
8. Sol is going on a trip of 275 mi. If he drives a steady 50 mi per hr, how long should the trip take?

_____

Mixed Review

Find the quotient. Write the answer in simplest form.

9.



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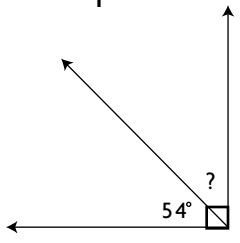
10.



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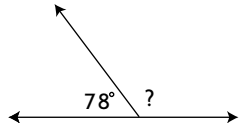
11.



_____

Evaluate the expression for $m = 5$ and $n = 2$.

12. $m - n^2 + 18 \div 3$ _____

13. $30 \div (m^2 - 10) + 6 \times n$ _____

14. $n \times 8(m - 2) - 4^2$ _____

15. $10 - (4 - n) \div (m + 3)$ _____

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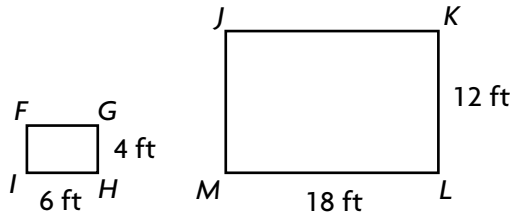
Name _____

LESSON 20.4

Algebra: Ratios and Similar Figures

Name the corresponding sides and angles. Write the ratio of the corresponding sides in simplest form.

1.



_____

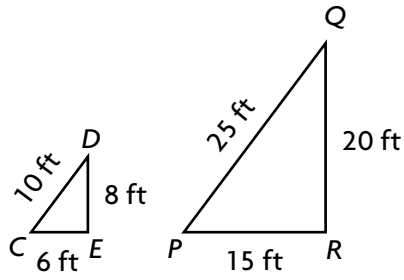
_____

_____

_____

_____

2.



_____

_____

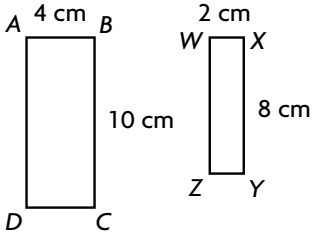
_____

_____

_____

Tell whether the figures in each pair are similar. Write *yes* or *no*. If you write *no,* explain.

3.



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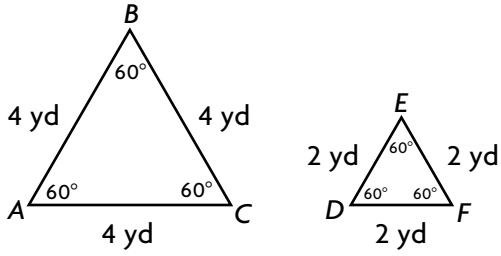
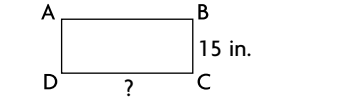
4.



_____

The figures in each pair are similar. Find the missing measures.

5.



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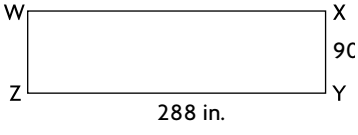
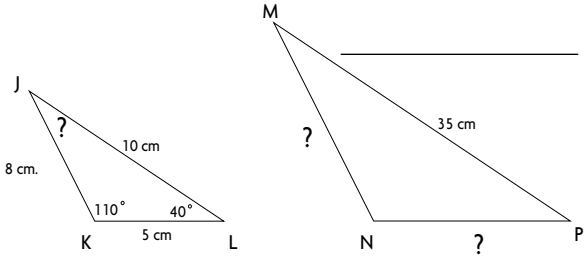


6.



_____

Mixed Review

Write the mixed number as a fraction.

7. $7\frac{27}{3}$ _____ **8.** $2\frac{8}{9}$ _____ **9.** $10\frac{1}{6}$ _____ **10.** $5\frac{4}{5}$ _____

Find the difference.

11. $^{+}12 - {}^{-}7\frac{7}{}$ _____ **12.** $^{-}4 - {}^{-}8$ _____ **13.** $^{-}21 - {}^{+}5$ _____ **14.** $^{-}15 - {}^{-}8$ _____

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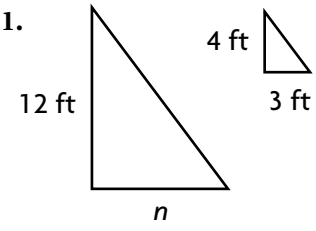
Name _____ LESSON20.5

Algebra: Proportions and Similar Figures

Write a proportion. Then find the unknown length. The figures in each pair are similar.

1.



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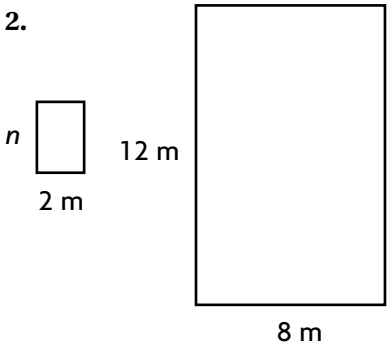

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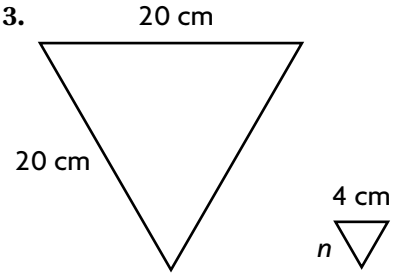

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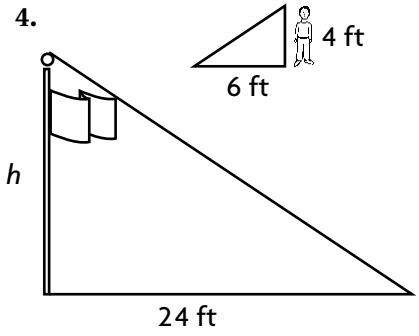

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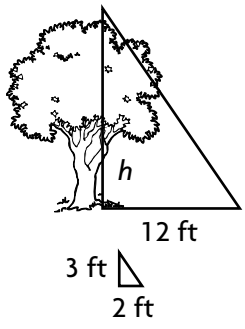

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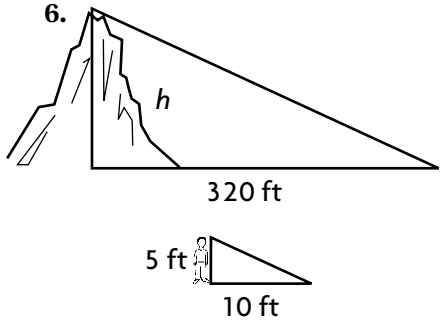

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Mixed Review

Solve and check.

7. $n + 5.5 = 23.1$ _____

8. $4\frac{1}{2} = k + \frac{3}{4}$ _____

9. $28 + w = 104$ _____

Find the LCM of each pair of numbers.

10. 4, 15 _____ **11.** 7, 9 _____ **12.** 6, 16 _____ **13.** 12, 25 _____

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Name _____ LESSON 20.6

Algebra: Scale Drawings

Find the missing dimension.

1. scale: 1 in.:8 ft
drawing length: 3 in.

actual length: _____ ft

2. scale: 1 in.:3 ft

drawing length: _____ in.
actual length: 12 ft

3. scale: 1 cm = 15 km

drawing length: _____ cm
actual length: 135 km

4. scale: 4 cm = 1 mm
drawing length: 1 cm

actual length: _____ mm

5. scale: 1 mm: 12 m
drawing length: 9 mm

actual length: _____ m

6. scale: 5 in.: 35 yd
drawing length: _____ in
actual length: 7 yd

7. scale: 3 cm = 10 km

drawing length: _____ cm
actual length: 65 km

8. scale: 8 cm = 3 mm
drawing length: 4 cm

actual length: _____ mm

9. scale: 10 in.:88 yd
drawing length: 2 in.

actual length: _____ yd

10. scale: 1 in.:12 ft
drawing length: _____ in.
actual length: 144 ft

11. scale: 1 mm = 25 m

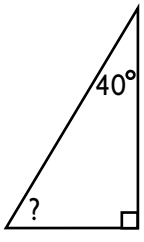
drawing length: _____ mm
actual length: 350 m

12. scale: 1 cm = 3 km
drawing length: 15 cm

actual length: _____ km

Mixed Review

Find the measure of the missing angle and classify the triangle.

13. 

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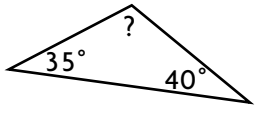
14. 

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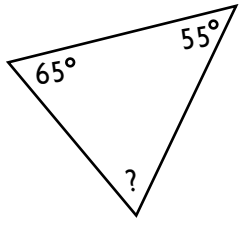
15. 

_____

Simplify the expression, then evaluate for $x = {}^{-}5$.

16. $2x + x^2 - 7 - 8x$

_____

17. $5x + 15 + 3x - 2$

_____

18. $59 + 7x - 6 + 4x$

_____

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Name _____

LESSON 20.7

Algebra: Maps

The map distance is given. Find the actual distance. The scale is 1 in. = 20 mi.

1. 4 in. _____

2. 20 in. _____

3. $1\frac{1}{2}$ in. _____

4. 6 in. _____

5. 18 in. _____

6. $2\frac{1}{2}$ in. _____

7. $3\frac{1}{2}$ in. _____

8. $5\frac{1}{2}$ in. _____

The actual distance is given. Find the map distance. The scale is 1 in. = 20 mi.

9. 250 mi _____

10. 100 mi _____

11. 150 mi _____

12. 170 mi _____

13. 500 mi _____

14. 190 mi _____

15 220 mi _____

16. 580 mi _____

Mixed Review

Find the mean, median, and mode.

17. 27, 19, 24, 29, 18, 25 29, 23, 28 _____

18. 39, 51, 45, 69, 22, 41, 33, 57, 30 _____

19. 99, 102, 97, 110, 97, 93, 98, 104, 108 _____

Place the decimal point in the product.

20. $27.95 \times 4.3 = 120185$ _____

21. $7.16 \times 1.82 = 130312$ _____

22. $2.709 \times 0.356 = 964404$ _____

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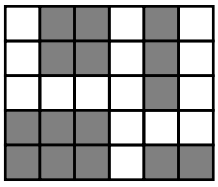
Name _____ LESSON 21.1

Percent

Write the percent that is shaded.

1. 

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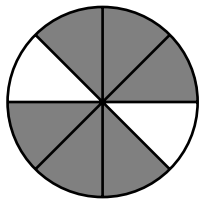
2. 

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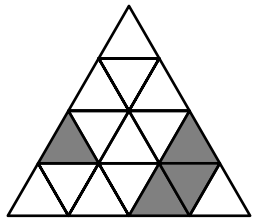
3. 

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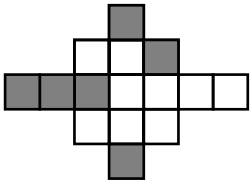
4. 

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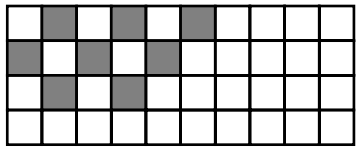
5. 

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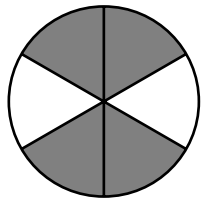
6. 

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Write as a percent.

7. $\frac{87}{100}$ _____
8. $\frac{6}{25}$ _____
9. $\frac{9}{10}$ _____
10. $\frac{120}{100}$ _____
11. $\frac{13}{20}$ _____
12. $\frac{1}{10}$ _____
13. $\frac{7}{25}$ _____
14. $\frac{85}{50}$ _____

Compare. Write $>$, $<$, or $=$.

15. 2.3% _____ 23%
16. 10% _____ 7%
17. 5% _____ 0.5%
18. 0.79% _____ 7.9%
19. 125% _____ 12.5%
20. 8.00% _____ 8%

Mixed Review

Write the ratio in fraction form. Then find the unit rate.

21. 120 swimmers for 6 lifeguards _____
22. 385 miles in 7 hours _____
23. $1.92 for 8 oz _____
24. $5.40 for a dozen muffins _____

Write the prime factorization in exponent form.

25. 63 _____
26. 144 _____
27. 230 _____

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Name _____

LESSON 21.2

Percents, Decimals, and Fractions

Write as a percent.

1. 0.7 _____ **2.** 0.18 _____ **3.** 0.84 _____ **4.** 0.41 _____

5. $\frac{3}{5}$ _____ **6.** $\frac{17}{100}$ _____ **7.** $\frac{5}{8}$ _____ **8.** $\frac{8}{25}$ _____

Write each percent as a fraction or mixed number in simplest form.

9. 75% _____ **10.** 30% _____ **11.** 55% _____ **12.** 240% _____

13. 6% _____ **14.** 56% _____ **15.** 105% _____ **16.** $12\frac{1}{2}\%$ _____

Write each percent as a decimal.

17. 37% _____ **18.** 9% _____ **19.** 0.05% _____ **20.** 321% _____

Compare. Write $>$, $<$, or $=$.

21 $\frac{1}{8}$ _____ 8% **22.** 23% _____ 2.3 **23.** 30% _____ $\frac{1}{3}$

Mixed Review

Find the quotient. Write the answer in simplest form.

24. $5 \div \frac{3}{8}$ **25.** $6\frac{1}{3} \div \frac{2}{5}$ **26.** $1\frac{1}{2} \div 3\frac{1}{3}$ **27.** $2\frac{3}{5} \div \frac{1}{8}$

_____ _____ _____ _____

For 28–30, use the figure at the right.

28. Name two angles adjacent to $\angle JOK$.

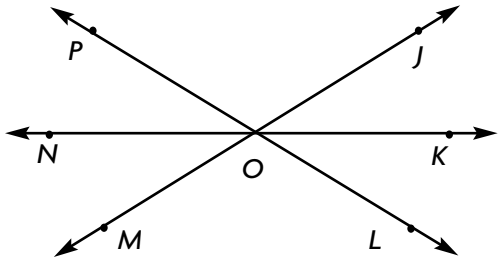
_____

29. Name an angle vertical to $\angle KOL$.

_____

30. Name two angles supplementary to $\angle MON$.

_____



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Name _____ LESSON 21.3

Estimate and Find Percent of a Number

Use a fraction in simplest form to find the percent of the number.

1. 10% of 8 **2.** 25% of 60 **3.** 50% of 50 **4.** 70% of 90 **5.** 80% of 70

_____ _____ _____ _____ _____

Use a decimal to find the percent of the number.

6. 15% of 8 **7.** 35% of 45 **8.** 55% of 92 **9.** 82% of 70 **10.** 93% of 24

_____ _____ _____ _____ _____

Use the method of your choice to find the percent of the number.

11. 52% of 40 **12.** 96% of 84 **13.** 81% of 34 **14.** 12% of 300 **15.** 67% of 200

_____ _____ _____ _____ _____

16. 4.5% of 90 **17.** 110% of 30 **18.** 140% of 100 **19.** 200% of 250 **20.** 400% of 80

_____ _____ _____ _____ _____

Estimate a 15% tip for each amount.

21. \$12.00 **22.** \$5.50 **23.** \$23.75 **24.** \$39.50 **25.** \$94.80

_____ _____ _____ _____ _____

Each proportion shows the percent of a number, *n*.
What is the percent? What is the percent of the number?

26. $\frac{20}{100} = \frac{n}{40}$ **27.** $\frac{5}{100} = \frac{n}{30}$ **28.** $\frac{n}{150} = \frac{12}{100}$

_____ _____ _____

Mixed Review

Solve and check.

29. $5n = 45$ **30.** $\frac{m}{3} = 12$ **31.** $99 = {}^{-}9k$ **32.** $21.4 = \frac{a}{6.3}$

_____ _____ _____ _____

Find the sum or difference. Write the answer in simplest form.

33. $\frac{5}{8} - \frac{1}{4}$ **34.** $\frac{2}{5} + \frac{1}{3}$ **35.** $\frac{5}{7} - \frac{1}{3}$ **36.** $\frac{3}{4} + \frac{1}{10}$

_____ _____ _____ _____

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Name _____

Discount and Sales Tax

Find the sale price.

1. regular price: $18.50
Discount 20%
_____

2. regular price: $35.00
25% off
_____

3. regular price: $45.50
SAVE 50%
_____

4. regular price: $23.60
SALE 80% off
_____

5. regular price $79.50
discount rate: 15%
_____

6. regular price $153.99
discount rate: 10%
_____

7. regular price $750.00
discount rate: 18%
_____

Find the regular price.

8. saleprice $47.60
discount rate: 30%
_____

9. saleprice $24.70
discount rate: 5%
_____

10. saleprice $239.20
discount rate: 20%
_____

Find the sale tax for the given price. Round to the nearest cent.

11. $30.00
tax: 8%
_____

12. $15.80
tax: 11%
_____

13. $654.00
tax: 7.5%
_____

14. $1,842.00
tax: 4%
_____

Find the total cost of the purchase. Round to the nearest cent.

15. price: $79.50
tax: 8%
_____

16. price: $129.95
tax: 6%
_____

17. price: $405.00
tax: 9%
_____

18. price: $3,385.00
tax: 5.5%
_____

Mixed Review

Find the quotient.

19. $36 \div {}^{-}4$ _____

20. ${}^{-}39 \div 3$ _____

21. ${}^{-}60 \div {}^{-}15$ _____

22. $81 \div {}^{-}9$ _____

Compare the fractions. Write $>$, $<$, or $=$.

23. $\frac{2}{3} \bigcirc \frac{6}{8}$

24. $\frac{10}{12} \bigcirc \frac{5}{8}$

25. $\frac{2}{7} \bigcirc \frac{3}{5}$

26. $\frac{8}{9} \bigcirc \frac{13}{14}$

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Name _____ LESSON 21.6

Simple Interest

Find the simple interest.

1. principal: $8,000
   rate: 5%
   time: 3 years

   _____

2. principal: $1,500
   rate: 7.2%
   time: 10 years

   _____

3. principal: $22,500
   rate: 4.8%
   time: 13 years

   _____

Find the simple interest.

	Principal	Yearly Rate	Interest for 1 Year	Interest for 2 Years
4.	$80	3%		
5.	$150	4.5%		
6.	$340	6%		
7.	$600	5.2%		
8.	$1,400	7.9%		
9.	$5,500	9%		
10.	$7,500	8.5%		
11.	$10,000	9.6%		
12.	$11,350	9.8%		
13.	$12,975	9.5%		

Mixed Review

Convert the temperature to degrees Fahrenheit. Write the answer as a decimal.

14. 50°C _____
15. 10°C _____
16. 93°C _____
17. 23°C _____
18. 35°C _____

Find the sum.

19. $^{+}9 + {}^{-}6$ _____
20. $^{-}4 + {}^{-}7$ _____
21. $^{-}12 + {}^{+}8$ _____
22. $^{-}20 + {}^{+}14$ _____
23. $^{+}3 + {}^{-}18$ _____
24. $^{-}6 + {}^{-}2$ _____
25. $^{-}36 + {}^{+}36$ _____
26. $^{+}30 + {}^{-}15$ _____
27. $^{-}5 + {}^{-}8$ _____

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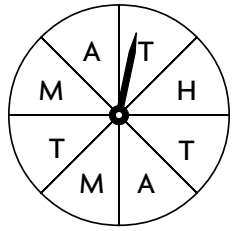
Name _____ LESSON 22.1

Theoretical Probability

Use the spinner at the right to find each probability. Express each answer as a fraction, decimal, and percent.



1. P(M) _____ **2.** P(H) _____

3. P(J) _____ **4.** P(T) _____

5. P(A) _____ **6.** P(M or A) _____

7. P(T or H) _____ **8.** P(M, A, or T) _____

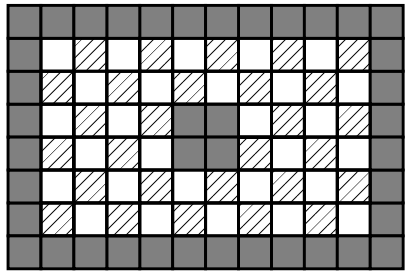
A bag contains 5 blue, 3 red, and 2 green pencils. You choose one pencil without looking. Find each probability. Tell how the event is likely to occur. Write *impossible*, *unlikely*, *likely*, *very likely*, or *certain*.

9. P(pink) _____ **10.** P(blue) _____ **11.** P(green) _____ **12.** P(blue or red) _____

Cards numbered 2, 2, 2, 3, 4, 4, 5, and 5 are placed in a box. You choose one card without looking. Compare the probabilities. Write $<$, $>$, or $=$.

13. P(2) ◯ P(4) **14.** P(4) ◯ P(5) **15.** P(3 or 5) ◯ P(2, 3, or 5)

For Exercises 16–18, use the figure at the right. Find each probability.



16. P(shaded square) _____

17. P(striped or white square) _____

18. P(shaded or striped square) _____

Mixed Review

Evaluate the expression for $x = {}^{-}3$, ${}^{-}1$, and 2.

19. ${}^{-}3x + 5$ **20.** $x^2 - 4x$ **21.** $7(2x + 1)$ **22.** $x^2(6 - x)$

Write the fraction as a percent.

23. $\frac{3}{4}$ _____ **24.** $\frac{3}{10}$ _____ **25.** $\frac{2}{25}$ _____ **26.** $\frac{6}{5}$ _____

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Name _____ LESSON 22.2

Problem-Solving Skill: Too Much or Too Little Information

Write if each problem has *too much*, *too little*, or *the right amount* of information. Then solve the problem if possible, or write what information is needed to solve it.

1. It costs $1 to buy a drink from a machine. The machine has water, 3 types of juice, and 5 different sodas. If Caryn pushes one of the buttons without looking, what is the probability that she will get one of the juices?

_____

2. Manny is in line at the Multiplex Theater. Of all the movies playing, there are 3 that Manny wants to see. If he buys a ticket without asking for a particular movie, what is the probability that he will get a ticket for a movie he wants to see?

_____

3. Mr. Irving is playing a game at a charity carnival. He pays $15 for a chance to play. To find out what he has won, he reaches into a bag containing a $1 bill, a $5 bill, a $10 bill, a $20 bill, and a $50 bill. What is the probability that Mr. Irving will win more than the game cost?

_____

4. Jessie ordered several books from an on-line store. When they arrived, she opened the carton, examined both science fiction books and the other novels. If she then randomly chose a book to read, what is the probability she chose on of the science fiction books?

_____

5. Leah was trying to guess the year Ali was born. She knew it was anywhere from 1980 through 1985. Her first guess was 1982. It was incorrect. What is the probability that Leah guessed correctly on her next try?

_____

6. Albert paid $8.95 for an almanac. He found out that in his city it rains an average of 75 days each year and snows an average of 15 days each year. What is the ratio of rainy days to snowy days?

_____

Mixed Review

Use a decimal to find the percent of the number.

7. 20% of 15 _____

8. 45% of 50 _____

9. 90% of 70 _____

10. 65% of 30 _____

Find the difference

11. $^{+}3 - {}^{-}7$ _____

12. $^{+}8 - {}^{+}15$ _____

13. $^{-}17 - {}^{+}5$ _____

14. $^{-}14 - {}^{-}9$ _____

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Name _____

LESSON 22.4

Experimental Probability

Adam tossed a coin 50 times. For Exercises 1–2, use the table at the right to find the experimental probability.

Coin	Heads	Tails
Toss	22	28

1. P(Heads) _____ **2.** P(Tails) _____

3. What is the theoreticalprobability of getting heads? _____

Sarah rolled a number cube numbered 1 to 6. The table below shows the results of rolling the cube 50 times. Use the results in the table to find the experimental probability.

Number	1	2	3	4	5	6
Times rolled	6	11	5	10	16	2

4. P(3) _____ **5.** P(4 or 5) _____ **6.** P(1 or 2) _____

7. P(5) _____ **8.** P(1) _____ **9.** P(6) _____

10. P(1 or 3) _____ **11.** P(3 or 6) _____ **12.** P(not 4) _____

13. What is the theoretical probability for each number? _____

Mixed Review

Multiply. Write the answer in simplest form.

14. $\frac{3}{4} \times \frac{2}{3}$ _____ **15.** $\frac{1}{2} \times \frac{5}{6}$ _____ **16.** $\frac{3}{8} \times \frac{4}{9}$ _____ **17.** $\frac{5}{12} \times \frac{3}{10}$ _____

Find the sum or difference. Write the answer in simplest form.

18. $1\frac{1}{2} + 3\frac{3}{8}$ _____ **19.** $5\frac{7}{8} - 2\frac{1}{4}$ _____ **20.** $\frac{7}{9} + 3\frac{2}{3}$ _____

21. $4\frac{2}{5} - 1\frac{3}{10}$ _____ **22.** $6\frac{1}{6} + 7\frac{3}{4}$ _____ **23.** $8\frac{5}{12} - 3\frac{1}{3}$ _____

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Name _____

LESSON 23.1

Problem Solving Strategy: Make an Organized List

Solve the problem by making an organized list.

1. Mr. Perez is planning a trip. He can leave on Monday, Wednesday, or Friday, at 8:00 A.M., 10:30 A.M., 2:00 P.M., or 4:30 P.M. How many choices does Mr. Perez have?

_____

2. Len is going on vacation. He has 1 jacket, 2 sweaters, and 4 shirts. How many different outfits can Len make if each outfit consists of a jacket, sweater, and shirt?

_____

3. The 14 members of the bicycle team want to put 2-digit numbers on the backs of their jerseys. They decided to use only the digits 2, 4, 6, 8. Can each team member have a different number? How many possible combinations are there?

_____

4. Twelve members of the science club are planning their next field trip. They can take the trip in May or June. They can visit a science museum, bird sanctuary, zoo, or planetarium. How many different field trips involving 1 place and 1 month are possible?

_____

5. Ben is planning a hike to Eagle Mountain, Crystal Lake, and Cedar Falls. He cannot decide in which order to visit them. How many choices does he have?

_____

6. Nina found jackets in blue, green, and red. She found scarves in yellow, beige, and navy. She wants to buy a jacket and scarf. How many combinations can she choose from?

_____

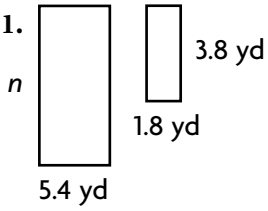
Mixed Review

A number cube is numbered 2, 3, 5, 8, 9, 9. Find each probability.

7. P(5) _____ **8.** P(9) _____ **9.** P(even) _____ **10.** P(not 9) _____

Write a proportion. Then find the unknown length. The figures are similar.

11.



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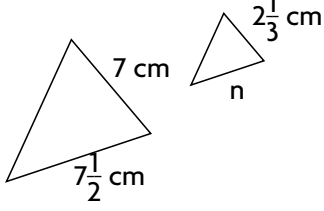
12.



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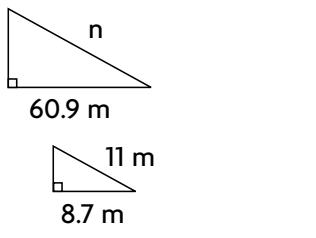

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Name _____ LESSON 23.2

Compound Events

Draw a tree diagram or make a table to find the number of outcomes for each situation.

1. spinning a pointer on a spinner labeled 1 to 4 and tossing a coin

2. a choice of 3 cards, 2 envelopes, and 2 stickers

3. a choice of either a red, blue, or green shirt and a black, gray, or brown jacket

4. a choice of 4 sandwiches, 2 drinks, and 2 desserts

Use the Fundamental Counting Principle to find the number of outcomes for each situation.

5. a choice of 3 juices, 2 muffins, and 3 sandwiches

6. a choice of 3 beverages, 2 snacks, and 4 sandwiches

7. tossing a coin and rolling 2 number cubes labeled 1 to 6.

8. a choice of 4 shirts, 4 ties, 3 trousers, and 3 belts

9. A Chinese restaurant offers 25 main dishes, 3 kinds of rice, and 3 different beverages. If the restaurant is open every day of the year, is it possible to eat a different meal there every day for a year? Explain.

10. Mr. Samson is buying 3 houses. One will be in either Boston or New York. One will be in either Los Angeles or Dallas. One will be in either Chicago, Denver, or Santa Fe. How many combinations are possible?

Mixed Review

Write each percent as a decimal.

11. 28% _____ 12. 5% _____ 13. 163% _____ 14. 91% _____

Find the measure of the third angle and classify the triangle.

15. $\angle 1 = 36°$; $\angle 2 = 18°$ 16. $\angle 1 = 53°$; $\angle 2 = 37°$ 17. $\angle 1 = 68°$; $\angle 2 = 59°$

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Name _____ LESSON 23.3

Independent and Dependent Events

Write *independent* or *dependent* to describe the event.

1. roll two number cubes two times

_____

2. select a lettered tile from a box, do not replace it, select another tile

_____

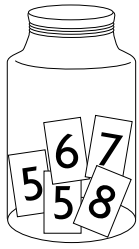
3. select a coin from a jar, do not replace it, select another coin

_____

4. select a marble from a bag, replace it, select another marble

_____

Without looking, you take a card out of a jar and replace it before selecting again. Find the probability of each event. Then find the probability assuming the card is not replaced after each selection.



5. P(5, 6) _____

6. P(6, 8) _____

7. P(5, 7 or 8) _____

8. P(6, not 5) _____

9. P(6, 7 or 8) _____

10. P(5, even) _____

11. P(7, 7) _____

12. P(7, 6, 5) _____

13. P(6, odd) _____

14. P(5, 8, 5) _____

15. P(5, 6, 7) _____

16. P(5, 5) _____

Mixed Review

Use the formula $d = rt$ to complete.

Write the fraction in simplest form.

17. $d = 858$ cm, $r = 55$ cm per second
$t =$ _____

18. $r = 48$ mi per hr, $t = 6.5$ hr
$d =$ _____

19. $d = 423$ m, $t = 18$ min
$r =$ _____

20. $\frac{25}{150}$ _____

21. $\frac{42}{210}$ _____

22. $\frac{27}{72}$ _____

23. $\frac{39}{52}$ _____

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Name _____

LESSON 23.4

Make Predictions

The results of a survey of 600 randomly selected teenagers in California indicate that 150 of them use their computers at least 2 hr a day.

1. What is the probability that a randomly selected teenager in California uses the computer at least 2 hr a day?

_____

2. Out of 5,500 California teenagers, predict how many would indicate that they use their computers at least 2 hr a day.

_____

3. In a sample of 800 bicycles, the quality control department found that 32 of them were defective. If the company manufactures 8,000 bicycles, about how many of them are defective?

_____

4. In a sample of 700 phones, the quality control department found 21 of them were defective. If the company manufactures 14,000 phones, about how many of them are defective?

_____

The table shows the favorite sports indicated by a random sample of 150 sixth graders from Glenville Middle School. Use the table for Exercises 5 and 6.

Favorite Sports

Sport	Number of Students
baseball	45
basketball	20
soccer	25
hockey	10
track	15
football	35

5. If there are 360 sixth graders at Glenville Middle School, about how many will prefer baseball? soccer?

_____

6. If there are 450 sixth graders at Glenville Middle School, about how many will prefer a sport other than baseball?

_____

Mixed Review

Find the difference.

7. $^{+}8 - {}^{+}9$ _____ 8. $^{-}5 - {}^{+}3$ _____ 9. $^{+}12 - {}^{-}4$ _____ 10. $^{-}6 - {}^{-}9$ _____

Find the LCM of each pair of numbers.

11. 5, 13 _____ 12. 12, 18 _____ 13. 9, 15 _____ 14. 8, 22 _____

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Name _____ LESSON 24.1

Customary Measurements

Use a proportion to convert to the given unit.

1. 80 fl oz = _____ c
2. 18 pt = _____ qt
3. 510 ft = _____ yd
4. 720 in. = _____ yd
5. 5 months ≈ _____ weeks
6. 6 c = _____ fl oz
7. 3 gal = _____ qt
8. 6 T = _____ lb
9. 32 fl oz = _____ c
10. 5 mi = _____ ft
11. 44 qt = _____ gal
12. 10 pt = _____ c
13. 157 ft = _____ yd ___ ft
14. 220 in. = _____ ft ___ in.
15. $5\frac{2}{3}$ yd = _____ ft
16. $5\frac{1}{2}$ T = _____ lb
17. $6\frac{1}{4}$ ft = _____ in.
18. $7\frac{1}{2}$ ft = _____ yd
19. 325 ft = _____ yd ___ ft
20. $3\frac{3}{4}$ yd = _____ ft
21. 15 gal = _____ qt

Compare. Write , < >, or = for ◯.

22. 8,500 lb ◯ 4 T _____
23. 25 yd ◯ 75 ft _____
24. 9 days ◯ 225 hrs _____
25. 16 c ◯ 4 qt _____
26. 5 gal ◯ 30 pt _____
27. 12 ft ◯ 120 in. _____

Mixed Review

Use inverse operations to solve. Check your solution.

28. $6x = 84$ _____
29. $\frac{w}{11} = 6$ _____
30. $3.5\ m = 14$ _____
31. $\frac{c}{8} = 4.7$ _____
32. $6.3 = \frac{h}{20}$ _____
33. $9.9 = 1.8\ r$ _____

Find the product.

34. $^{-}11 \times {}^{-}5$ _____
35. $18 \times {}^{-}6$ _____
36. $^{-}7 \times 8$ _____
37. $^{-}14 \times {}^{-}21$ _____

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Name _____

LESSON 24.2

Metric Measurements

Complete the pattern.

1. 1 L = _____ cL

0.1 L = _____ cL

0.01 L = _____ cL

2. 1,000 mg = _____ g

100 mg = _____ g

10 mg = _____ g

1 mg = _____ g

3. 1 m = _____ km

10 m = _____ km

100 m = _____ km

1,000 m = _____ km

Use a proportion to convert to the given unit.

4. 40 g = _____ kg

5. 300 km = _____ m

6. 9 kL = _____ L

7. 6 kL = _____ dL

8. 300 cm = _____ dm

9. 50 dL = _____ cL

10. 12 kL = _____ L

11. 28 g = _____ mg

12. 8 km = _____ m

13. 2.2 g = _____ cg

14. 7 dm = _____ m

15. 5.5 cg = _____ dg

Compare. Write , $<$ $>$, or $=$ for ◯.

16. 600 mm ◯ 6 m

_____

17. 80 km ◯ 80,000 m

_____

18. 4,000 mL ◯ 4 L

_____

19. 2.5 kg ◯ 25,000 mg

_____

20. 50 kL ◯ 50,000 L

_____

21. 14,500 mg ◯ 145 g

_____

Mixed Review

Find the quotient.

22. $^-85 \div {}^-5$

_____

23. $^-48 \div 8$

_____

24. $162 \div {}^-9$

_____

25. $^-132 \div {}^-12$

_____

Find the difference. Write the answer in simplest form.

26. $7\frac{1}{2} - 6\frac{1}{3}$

_____

27. $5\frac{5}{8} - 3\frac{3}{4}$

_____

28. $10\frac{1}{6} - 5\frac{7}{8}$

_____

29. $15\frac{1}{3} - 12\frac{4}{5}$

_____

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Name _____

LESSON 24.3

Relate Customary and Metric

Use a proportion to convert to the given unit.

1. 4 ft ≈ ? cm
2. 16 yd ≈ ? m
3. 12 qt ≈ ? L
4. 30 lb ≈ ? kg
5. 16 L ≈ ? qt
6. 64 cm ≈ ? ft
7. 3 in. ≈ ? mm
8. 130 yd ≈ ? m
9. 120 L ≈ ? gal
10. 52 m ≈ ? ft
11. 150 kg ≈ ? lb
12. 6 m ≈ ? in.
13. 2 ft ≈ ? cm
14. 40 yd ≈ ? m
15. 3 lb ≈ ? g

Compare. Write $<$, $>$, or $=$ for each ◯.

16. 7 ft ◯ 421 cm
17. 80 cm ◯ 4.5 ft
18. 8.5 lb ◯ 5 kg
19. 44 mm ◯ 5 in.
20. 32.8 ft ◯ 10m
21. 5 km ◯ 3.2 mi
22. 22 gal ◯ 55 L
23. 8.2 qt ◯ 10.1 L
24. 1.5 mi ◯ 1.7 km

Mixed Review

Use inverse operations to solve. Check your solutions.

25. $x + 7 = 19$
26. $y - 9 = 7$
27. $m + 19 = 41$
28. $r - 27 = 15$
29. $z + 4.7 = 11$
30. $w - 7.8 = 5.6$

Find the difference.

31. $^{-}5 - {}^{+}7$ _____
32. $^{+}8 - {}^{+}10$ _____
33. $^{+}6 - {}^{-}9$ _____

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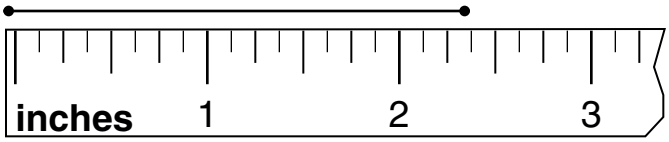
Name _____

Appropriate Tools and Units

Measure the line segment to the given length.

1. nearest inch; nearest half inch



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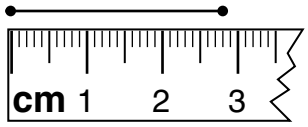
2. nearest centimeter; nearest millimeter



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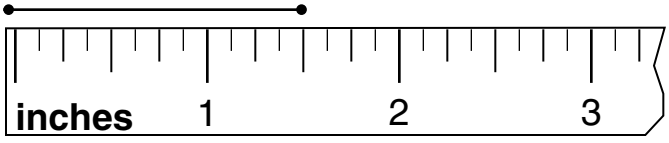
3. nearest half inch; nearest quarter inch



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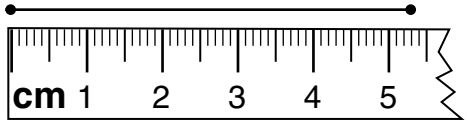
4. nearest centimeter; nearest millimeter



_____

5. nearest inch; nearest half inch

_____

6. nearest centimeter; nearest millimeter

_____

Tell which measure is more precise.

7. 9 lb or 142 oz _____

8. 6 c or 50 oz _____

9. 350 cm or 420 mm _____

10. 9 mg or 12 kg _____

11. 2 yd or 71 in. _____

12. 1 L or 980 mL _____

Name an appropriate customary or metric unit of measure for each item.

13. the amount of formula in a baby's bottle _____

14. the weight of a laptop computer _____

15. the length of the eraser on a pencil _____

16. the weight of a box of tissues _____

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Mixed Review

Use inverse operations to solve. Check your solution.

17. $5w = 30$ _____

18. $\frac{m}{4} = 5$ _____

19. $72 = 9h$ _____

20. $\frac{w}{3} = 17$ _____

Write the ratio in three ways.

21. five to nine _____

22. ten to seven _____

Name _____

LESSON 24.5

Problem Solving Skill: Estimate or Find Exact Answer

Decide whether you need an estimate or an exact answer. Solve.

1. You and several friends are setting up tents on a camping trip. It takes 25 min to set up a tent. If you begin at 1:00 P.M., can you set up 7 tents by 3:00 P.M.?

_____

2. Your campsite is a rectangle 61 ft by 33 ft. You have 200 ft of rope. Do you have enough to run the rope around the entire perimeter of the campsite?

_____

3. You brought 9 bags of snacks with you for the 2-day trip. Each bag cost $1.59. If you paid for the snacks with a $20 bill, how much change did you receive?

_____

4. On the second day of the trip, your group hikes for $3\frac{3}{4}$ hr. If you average 3.8 mi per hr, will you have reached your goal of covering at least 10 mi?

_____

5. The odometer on the van you rented for the trip read 5,398.2 mi when you left home. It read 5,702.1 mi when you arrived back home. How far did you drive?

_____

6. Everyone agrees that they want to get at least 8 hr sleep per night. If you want to wake up at 6:45 A.M. each morning, what is the latest you can fall asleep each night?

_____

7. The trip to the campground usually takes about $3\frac{1}{4}$ hr. If you leave home at 8:45 A.M. and make two 20-min stops, would you arrive by noon?

_____

8. On the last night of the camping trip, you have 1 gal of water left. After making 3 cans of soup that each required 16 oz of water, how many ounces of water do you have left?

_____

Mixed Review

Find the sum or difference. Write the answer in simplest form.

9. $\frac{1}{2} - \frac{1}{3}$ _____
10. $\frac{2}{5} - \frac{1}{4}$ _____
11. $\frac{2}{5} - \frac{1}{6}$ _____
12. $\frac{5}{8} - \frac{1}{4}$ _____
13. $\frac{7}{8} - \frac{3}{4}$ _____
14. $\frac{7}{10} + \frac{1}{5}$ _____
15. $\frac{1}{6} + \frac{1}{3}$ _____
16. $\frac{3}{5} + \frac{1}{3}$ _____
17. $\frac{1}{9} + \frac{1}{2}$ _____
18. $\frac{2}{9} + \frac{1}{3}$ _____

Find the sum.

19. $^{-}3 + {}^{-}7$ _____
20. $^{-}4 + {}^{+}6$ _____
21. $^{+}5 + {}^{-}8$ _____
22. $^{+}4 + {}^{+}7$ _____

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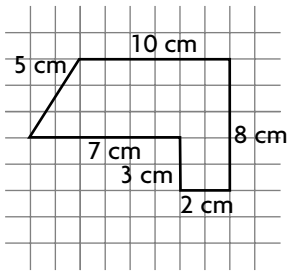
Name _____

Perimeter

Find the perimeter.

1.



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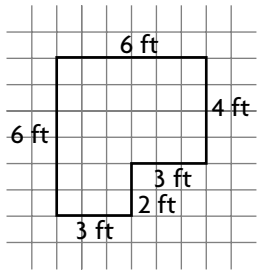

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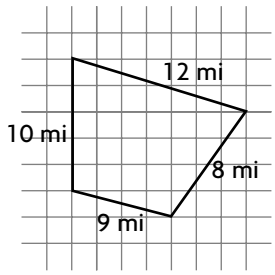
3.



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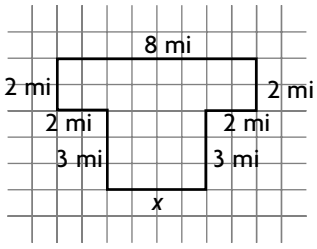
Find the unknown length.
Then find the perimeter.

4.

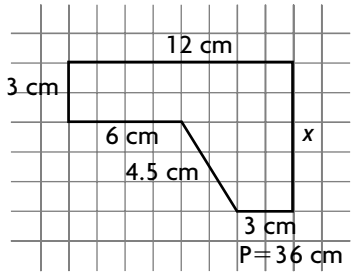


_____

_____

The perimeter is given.
Find the unknown length.

5.



_____

Mixed Review

Use a proportion to change to the given unit.

6. 18 yd = _____ in.

7. 22 qt = _____ gal

8 435 min = _____ hr

9. 8.5 gal = _____ pt

10. 348 in. = _____ ft

11. $12\frac{1}{2}$ lb = _____ oz

Write a numerical or algebraic expression for the word expression.

12. One hundred divided by the sum of k and m. _____

13. v less than two thousand forty-seven. _____

14. w multiplied by the product of a and b. _____

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Name _____ LESSON 25.3

Problem-Solving Strategy: Draw a Diagram

Solve the problem by drawing a diagram.

A contractor built a house in the shape of a rectangle. The house is 64 ft long and 48 ft wide. There is a wall running across the width of the house. The wall divides the length of the house into two sections, one larger than the other. The distance from the wall to one end of the house is 3 times the distance from the wall to the other end.

1. Describe the shape of the larger section of the house. Give the dimensions of the figure.

_____

2. Molding is going to be installed around the entire floor of the larger section of the house. How many feet of molding will be needed?

_____

3. There are 3 doors leading into the house. Each door is 3 ft wide. What is the perimeter of the house if the doors are not included?

_____

4. There are beams around the perimeter of the house every 16 in. If there is a beam in each corner, what is the total number of beams

_____

5. There are plans to add a garage to the side of the house. The length of the rectangular garage will be 3 ft greater than its width. If the perimeter of the garage will be 90 ft, find its length and width.

_____

6. The garage will be attached to the house along one of its shorter sides. What will be the perimeter of the house and garage when the garage is complete?

_____

Mixed Review

Write the ratio as a percent.

7. $\frac{74}{100}$ _____

8. $\frac{6}{100}$ _____

9. $\frac{19}{100}$ _____

10. $\frac{40}{100}$ _____

11. $\frac{1}{100}$ _____

12. $\frac{100}{100}$ _____

13. $\frac{50}{100}$ _____

14. $\frac{98}{100}$ _____

Use a proportion to change to the given unit.

15. 2,400 mL = _____ L

16. 5.8 kg = _____ g

17. 150 cm = _____ m

18. 0.7 g = _____ mg

19. 1,300 m = _____ km

20. 7,500 L = _____ kL

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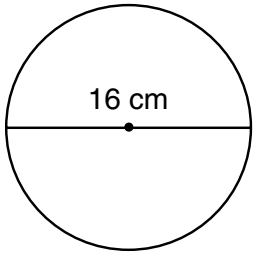
Name _____

Circumference

Find the circumference of the circle. Use 3.14 or $\frac{22}{7}$ for π. Round to the nearest whole number.

1.



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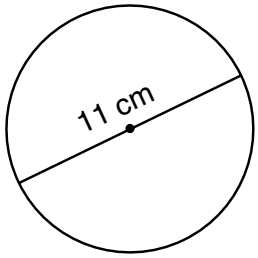

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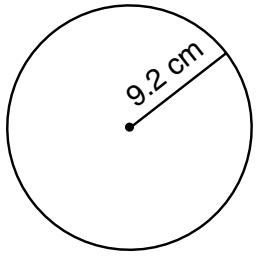

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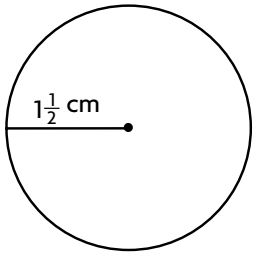

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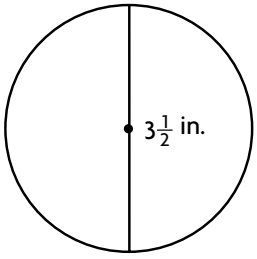

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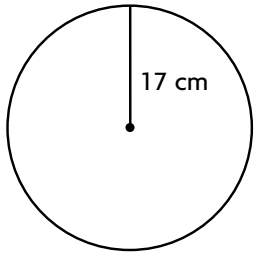

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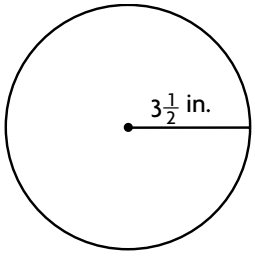

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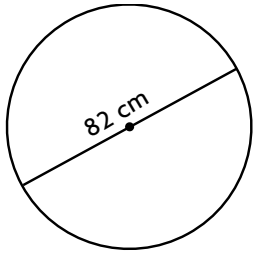

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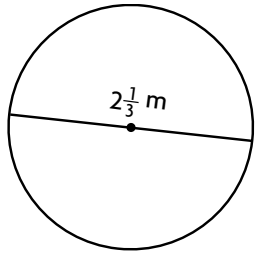

_____

Mixed Review

Use inverse operations to solve. Check your solution.

10. $3x = 12$ _____

11. $40 = 8m$ _____

12. $\frac{y}{3} = 6$ _____

13. $\frac{h}{7} = 6$ _____

Find the sale price.

14. regular price: $48.00
20% off
_____

15. regular price: $72.00
30% off
_____

16. regular price: $120.00
60% off
_____

17. regular price: $95.00
25% off
_____

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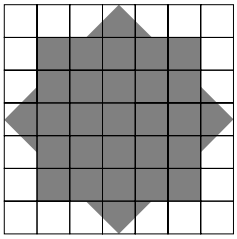
Name _____

LESSON 26.1

Estimate and Find Area

Estimate the area of the figure. Each square is 1 in.^{2}

1. 

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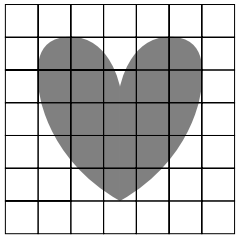
2. 

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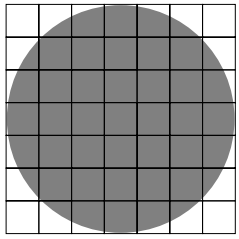
3. 

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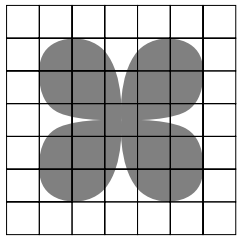
4. 

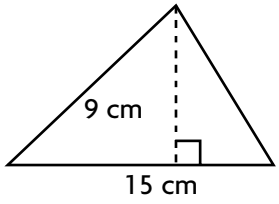
_____

Find the area.

5.

_____

6.



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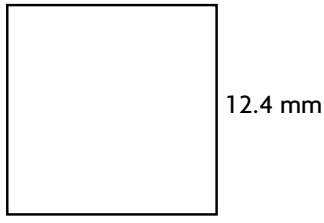

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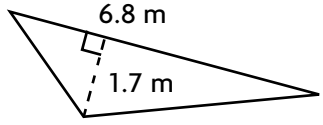
8.



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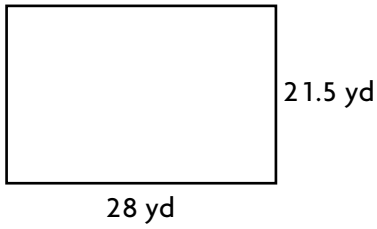
9.



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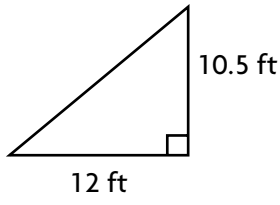
10.



_____

Mixed Review

Find the circumference of the circle. Use $\pi = 3.14$.

11. $d = 17$ cm _____

12. $d = 3.5$ in. _____

13. $r = 11$ mm _____

14. $r = 6.1$ ft _____

Solve and check.

15. $x + 7 = 19$ _____

16. $30 = a + 13$ _____

17. $^{-}45 = 22.5 + n$ _____

18. $c + 2.3 = 9.1$ _____

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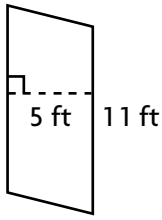
Areas of Parallelograms and Trapezoids

Find the area of each figure.

1.



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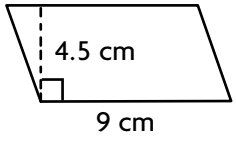

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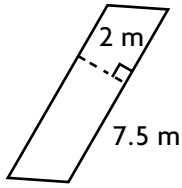

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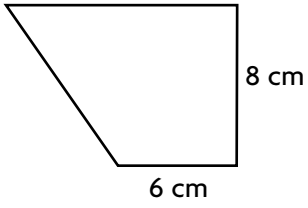

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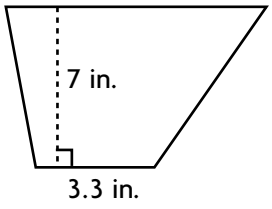
5.



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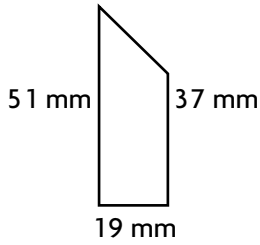
6.



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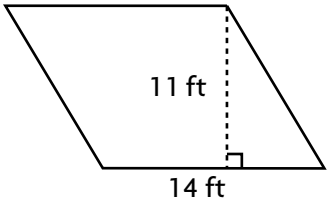
7.



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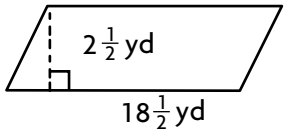
8.



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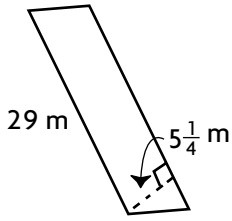
9.



_____

Mixed Review

Tell which measurement is more precise.

10. 10 ft or 12 in. _____

11. 2 T or 2,000 lb _____

12. 4 pt or 1 gal _____

13. 2 kg or 8 g _____

Evaluate the expression for $x = {}^{-}2$, 0, and 4.

14. $6 - \frac{x}{2}$ _____

15. $5x + 12$ _____

16. ${}^{-}2 - 3x$ _____

17. $({}^{-}x + 2) \cdot 3$ _____

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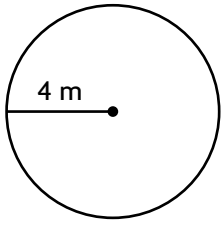
LESSON 26.4

Areas of Circles

Find the area of each circle to the nearest whole number.

1.



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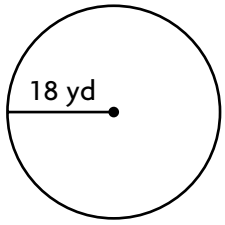
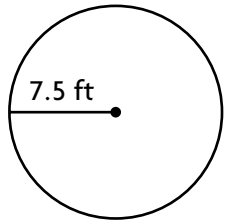


3.



_____ _____ _____

4. $r = 17$ yd _____ **5.** $d = 38$ ft _____ **6** $r = 5.6$ m _____

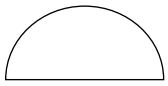
7. $d = 10$ mm _____ **8.** $r = 2.2$ mi _____ **9.** $d = 54$ cm _____

10. $r = 21$ ft _____ **11.** $d = 1.8$ mi _____ **12.** $r = 15.5$ in. _____

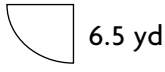
13. $d = 30$ cm _____ **14.** $r = 6.6$ yd _____ **15.** $d = 16$ m _____

Find the area of the semicircle or quarter circle to the nearest whole number. Use 3.14 for π.

16.



17.



_____ _____

Mixed Review

A number cube is numbered 1 through 6. Find each probability.

18. P(3) **19.** P(1 or 6) **20.** P(8) **21.** P(even)

_____ _____ _____ _____

Compare the numbers. Write $<$, $>$, or $=$.

22. 0.01 _____ 0.11 **23.** 19.9 _____ 19.90 **24.** 0.411 _____ 0.401 **25.** 1.575 _____ 1.757

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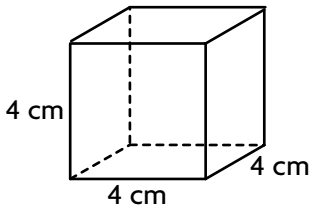
Surface Areas of Prisms and Pyramids

Find the surface area.

1.



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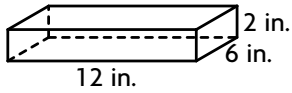
2.



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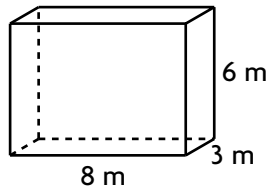
3.



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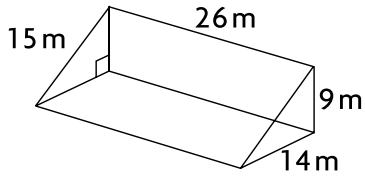
4.



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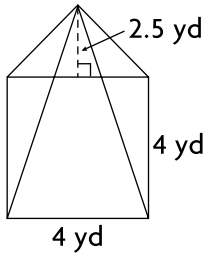
5.



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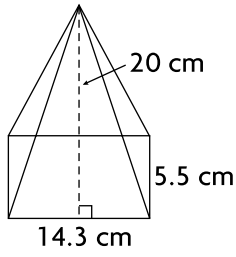
6.



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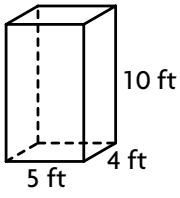
7.



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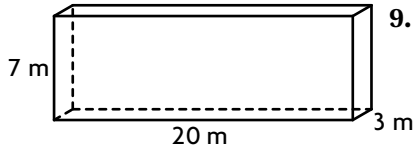
8.



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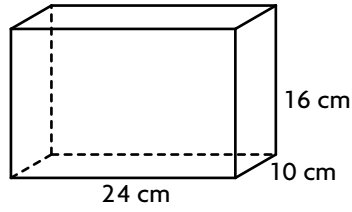

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Mixed Review

Evaluate the expression for m = 6 and n = $^{-}2$.

10. $m \div 3 - 4n$

_____

11. $(50 - m^2) \times 3 + n$

_____

12. $12n - 5 \times {}^{-}2m$

_____

Find the LCM of each pair of numbers.

13. 4, 18 _____

14. 6, 32 _____

15 3, 11 _____

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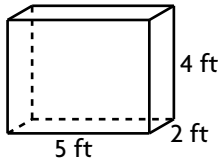
Name _____ Lesson 27.1

Estimate and Find Volume

Find the volume.

1.



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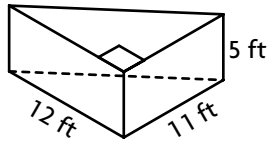
2.



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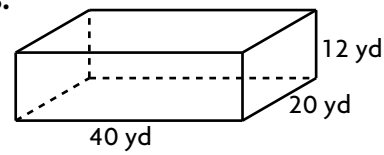
3.



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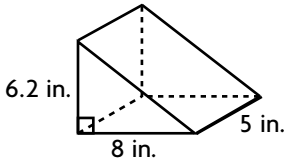
4.



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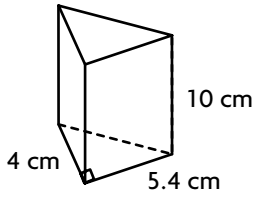
5.



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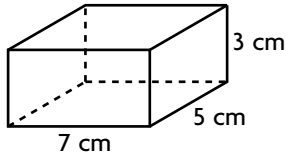

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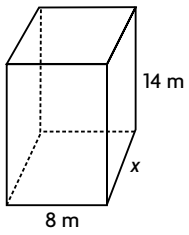
Find the unknown length.

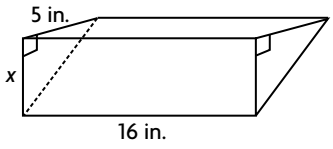
7.



$V = 672 \text{ m}^3$

_____

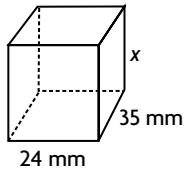
8.



$V = 160 \text{ in.}^3$

_____

9.



$V = 17{,}640 \text{ mm}^3$

_____

Mixed Review

Find the circumference of the circle to the nearest whole number.
Use 3.14 or $\frac{22}{7}$ for π.

10. $r = 4$ in. _____

11. $d = 6.3$ cm _____

12. $r = 12\frac{1}{2}$ m _____

13. $d = 9\frac{1}{3}$ yd _____

14. $r = 110$ mm _____

15. $d = 15.7$ ft _____

Find the unknown dimension.

16. scale: 1 cm:12 m
drawing length: 18 cm
actual length: _____

17. scale: 3 cm: 2 mm
drawing length: _____
actual length: 11 mm

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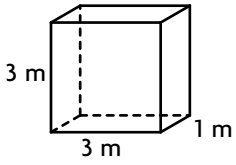
Name _____

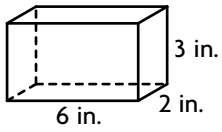
Problem Solving Strategy: Make a Model

Find the volume. Then double the dimensions. Find the new volume.

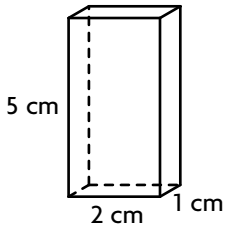
1.



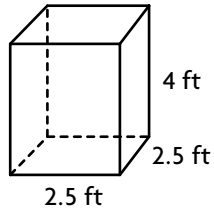
2.



3.



4.



_____ _____ _____ _____

Find the volume of each prism. Then halve the underlined dimensions and find the new volume.

	Length	Width	Height	Volume	New Volume
5.	5 m	4 m	2 m		
6.	12 ft	8 ft	10 ft		
7.	24 cm	3 cm	6 cm		
8.	9 in.	6 in.	10 in.		

Mixed Review

A number cube is numbered 1 through 6. Find each probability.

9. $P(5)$ _____ **10.** $P(\text{not } 2)$ _____ **11.** $P(\text{even})$ _____ **12.** $P(1 \text{ or } 3)$ _____

Solve and check.

13. $n + 8 = 57$

_____

14. $30 = x + 82$

_____

15. $k + 2\frac{1}{3} = 11$

_____

16. $22 = 7.34 + b$

_____

17. $17\frac{1}{2} + m = 23\frac{1}{4}$

_____

18. $^{-}44 = 37 + a$

_____

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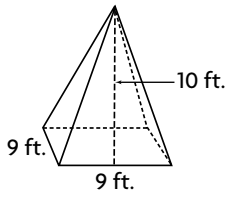
Name _____

LESSON 27.3

Algebra: Volumes of Pyramids

Find the volume.

1.



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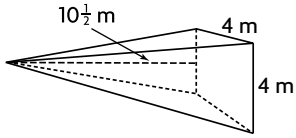
2.



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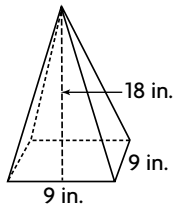
3.



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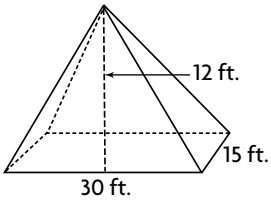
4.



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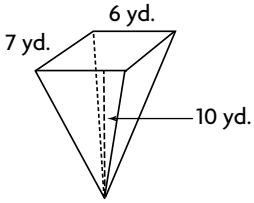
5.



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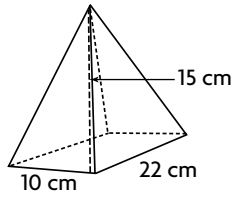
6.



_____

7. rectangular pyramid: $l = 36$ in., $w = 50$ in., $h = 60$ in.

_____

8. square pyramid: $l = 14$ yd, $w = 14$ yd, $h = 25$ yd

_____

9. rectangular pyramid: $l = 6$ cm, $w = 5$ cm, $h = 6$ cm

_____

10. square pyramid: $l = 10$ m, $w = 10$ m, $h = 15$ m

_____

Mixed Review

Find the area of each circle to the nearest whole number. Use 3.14 for pi (π).

11. $r = 4$ yd _____

12. $d = 12$ ft _____

13. $r = 5.5$ m _____

14. $d = 7.2$ cm _____

Use a proportion to change to the given unit.

15. 4 qt = _____ c

16. 26 in. = _____ ft

17. 68 oz = _____ lb

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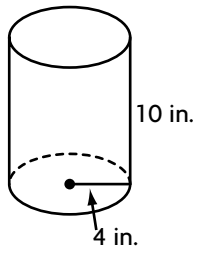
Volumes of Cylinders

Find the volume. Round to the nearest whole number.

1.



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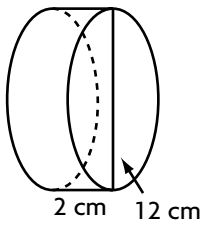
2.



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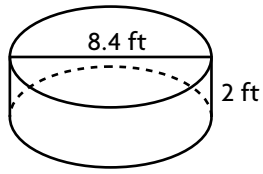
3.



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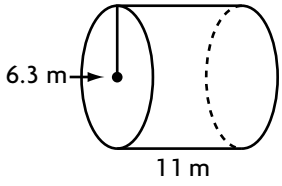
4.



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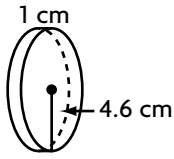
5.



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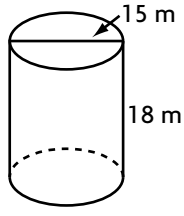
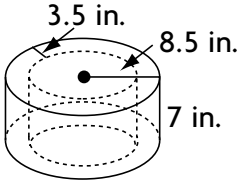
6.



_____

Find the volume of the inside cylinder to the nearest whole number.

7.



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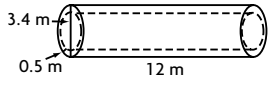
8.



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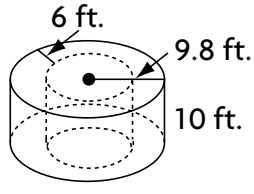
9.



_____

Mixed Review

There are 6 blue socks, 5 red socks, and 10 black socks in a drawer. Without looking, you pull out 2 socks. Find the probabilities.

10. P(red, black) _____ **11.** P(2 blue) _____ **12.** P(black, blue) _____

Find the sum.

13. $7 + {}^{-}8$ **14.** ${}^{-}3 + 14$ **15.** ${}^{-}9 + {}^{-}27$ **16.** ${}^{-}15 + 3$ **17.** $22 + {}^{-}18$

_____ _____ _____ _____ _____

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Name _____ LESSON 28.1

Problem-Solving Strategy: Find a Pattern

Solve the problems by finding the pattern.

1. Laura is reading a novel she found in the school library. She read 15 pages the first day. Then each day she read 6 more pages than the day before. How many pages did she read on the eighth day?

_____

2. When Jeff played his new computer game for the first time, he scored 10,000 points. Each time he played, he increased his score by 15,000 points. How many games did Jeff have to play to reach a score of 100,000?

_____

3. For her pet store's grand opening, Mrs. Santos gave 7 prizes. The seventh-prize winner received a $1 gift certificate, the sixth-prize winner a $2 certificate, the fifth-prize winner a $4 certificate, the fourth-prize winner an $8 certificate. What was the value of the first-prize certificate?

_____

4. Kevin is laying tile in his kitchen. The area of the kitchen is 96 ft^2. Since this is his first tile job, he is working at it slowly. He tiled 7 ft^2 the first day, 14 ft^2 the second day, and 21 ft^2 the third day. If this pattern continues, how many days will it take Kevin to tile the entire floor?

_____

5. The school band is practicing for a competition to be held in 8 weeks. The band practices 1 hr a day for the first week. It practices $1\frac{1}{4}$ hr a day for the second week, $1\frac{1}{2}$ hr a day the third week, and $1\frac{3}{4}$ hr a day the fourth week. If this pattern continues, how many hours will the band practice during the eighth week?

_____

6. A synchronized swim team makes different patterns in the water by joining their arms and legs. One swimmer begins the pattern. After 5 sec, two swimmers join. At 10 sec, two more join. At 15 sec, another two join the group. If this pattern continues, how many swimmers will be in the group after 30 sec?

_____

Mixed Review

Find the volume of the cylinder. Round to the nearest whole number.

7. diameter = 13 in.
height = 5 in.

_____

8. radius = 7.5 cm
height = 24 cm

_____

9. diameter = 30 m
height = 73 m

_____

Find the volume.

10. $24 + \sqrt{64} - 6^2 - \sqrt{81}$

_____

11. $\sqrt{144} + 7^2 - \sqrt{36} - 5^2$

_____

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Name _____

Patterns in Sequences

Write the rule for each sequence.

1. 17, 22, 28, 35, . . .

2. 81, 69, 57, 45, . . .

3. 1, 5, 25, 125, . . .

4. 117, 116, 113, 108, . . .

5. 700, 70, 7, 0.7, . . .

6. 1,000, 500, 250, 125, . . .

7. 77, 79, 83, 85, 89, . . .

8. 19, 16.5, 14, 11.5, . . .

9. 64, 55, 47, 40, . . .

Find the next three terms in each sequence

10. 17, 34, 68, 136, . . .

11. 325, 320, 310, 295, . . .

12. 14.6, 14.5, 14.3, 14.0, . . .

13. 3, 9, 27,81, . . .

14. 535, 529, 522, 514, . . .

15. 33, 45, 57, 69, . . .

16. 1,458, 486, 162, 54, . . .

17. 390, 401, 414, 429, . . .

18. 7, $^{-}14$, 28, $^{-}56$, . . .

Mixed Review

Find the surface area.

19. rectangular prism
$l = 18$ cm
$w = 14$ cm
$h = 8$ cm

20. cube
edge = 5.5 in.

21. rectangular prism
$l = 7.3$ yd
$w = 4.1$ yd
$h = 6.5$ yd

The map distance is given. Write and solve a proportion to find the actual distance. Use a map scale of 1 cm = 68 mi.

22. 4 cm

23. $10\frac{1}{2}$ cm

24. 5 cm

25. 15 cm

26. $7\frac{1}{2}$ cm

27. $12\frac{1}{4}$ cm

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Name _____ LESSON 28.3

Number Patterns and Functions

Write an equation to represent the function.

1.

w	3	9	15	21	33
l	1	3	5	7	11

_____

2.

x	2	4	6	8	10
y	6	10	14	18	22

_____

3.

s	14	12	8	6	4
t	12.8	10.8	6.8	4.8	2.8

_____

4.

m	2	6	7	9	11
n	8	24	28	36	44

_____

Write an equation to represent the function. Then find the missing term.

5.

j	11	15	19	23	27
k	23	27	31		39

_____

6.

a	32	26	22	18	14
b	16		11	9	7

_____

7.

e	2	6	7	9	11
f	10	30	35	45	

_____

8.

x	2	3	4	5	6
y		8	11	14	17

_____

Write an equation for the function. Possible answers are given.

9. The width of a rectangle is $\frac{1}{3}$ its length. _____

10. An elevator travels at the rate of 5 floors per minute. _____

11. Each person on the bus has two suitcases. _____

Mixed Review

Write as a percent.

12. 0.002 _____ **13.** $\frac{7}{20}$ _____ **14.** 1.18 _____ **15.** $\frac{1}{25}$ _____

Write the prime factorization in exponent form.

16. 90 _____ **17.** 252 _____ **18.** 675 _____ **19.** 500 _____

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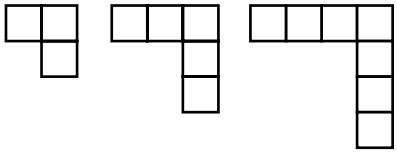
Name _____

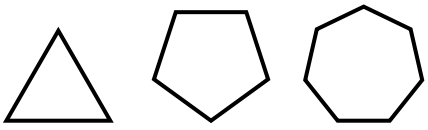
Geometric Patterns

Draw the next three figures in each geometric pattern.

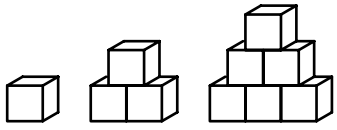
1. 

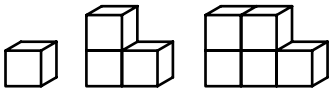
2.

3.

4. 

Describe the next two solid figures you would draw for the pattern.

5. 

6. 

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Mixed Review

Tell which measurement is more precise.

7. 38 oz or 6 lb _____

8. 14.5 gal or 20 c _____

9. 41 cm or 41 m _____

Write the fraction as a mixed number or a whole number.

10. $\frac{51}{8}$ _____

11. $\frac{19}{5}$ _____

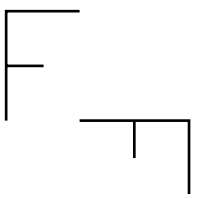
12. $\frac{23}{2}$ _____

13. $\frac{91}{7}$ _____

Name _____ LESSON 29.1

Transformations of Plane Figures

Tell which type or types of transformations the second figure is of the first figure. Write *translation, rotation,* or *reflection.*

1. 

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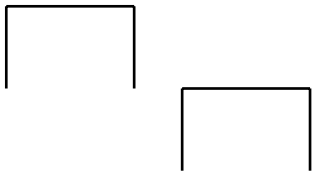
2. 

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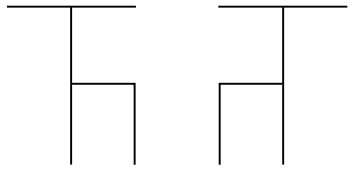
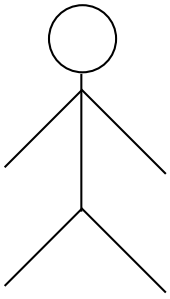
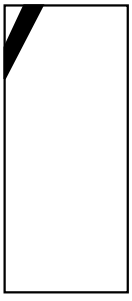
3. 

_____

Draw a 90° rotation and horizontal reflection of each figure.

4. 

5. 

Mixed Review

Find the volume.

6. rectangular prism
$l = 7$ yd; $w = 9$ yd
$h = 14$ yd

_____

7. cube
side = 12 cm

_____

8. rectangular prism
$l = 3.6$ m; $w = 0.8$ m
$h = 1.5$ m

_____

Use a proportion to change to the given unit.

9. 10.5 m = _____ cm **10.** 670 g = _____ kg **11.** 56 L = _____ mL

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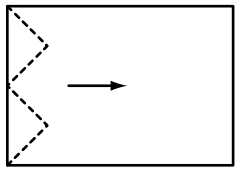
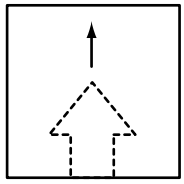
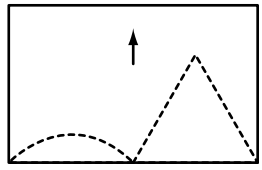
Name _____

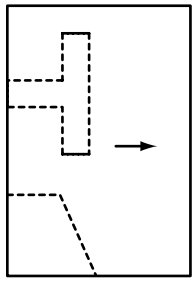
Tessellations

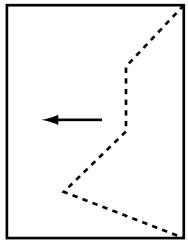
Make the tessellation shape described by each pattern. Then form two rows of a tessellation.

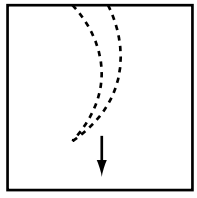
1. 

2. 

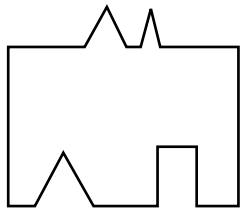
3. 

4. 

5. 

6. 

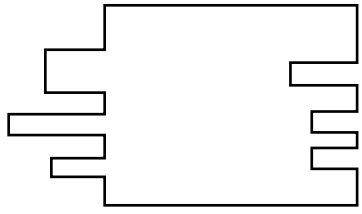
Tell whether the shape can be used to form a tessellation. Write *yes* or *no*.

7. 

_____

8.

_____

9. 

_____

Mixed Review

Find the area of each figure.

10. square
side = 8.3 in.

_____

11. triangle
b = 16 cm; h = 11 cm

_____

12. rectangle
l = 37 ft; w = 21 ft

_____

Find the difference. Write the answer in simplest form.

13. $7\frac{1}{3} - 3\frac{3}{4}$

_____

14. $4\frac{2}{5} - 1\frac{2}{3}$

_____

15. $9\frac{3}{8} - \frac{4}{5}$

_____

16. $30 - 27\frac{7}{8}$

_____

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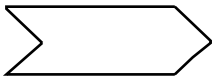
Name _____ LESSON 29.3

Problem-Solving Strategy: Make a Model

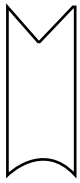
Solve the problem by making a model.

1. Carol is making a design from the shape below. She wants the shape to tessellate a plane. Can she use this shape?



_____

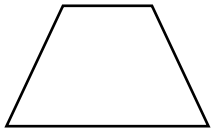
2. Will this shape tessellate a plane? Explain.



_____

_____

3. Adam created this shape for a tile floor. Will his shape tessellate a plane?



_____

4. Draw a figure that does NOT tessellate a plane.

Mixed Review

Find the unknown dimension.

5. scale:1 in.:5 yd
drawing length: 8 in.
actual length: _____

6. scale: 3 cm:35 m
drawing length: _____
actual length: 525 m

7. scale: 5 cm:3 mm
drawing length: 27 cm
actual length: _____

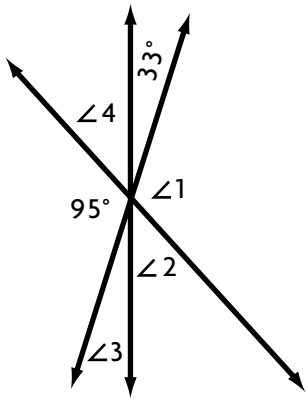
Find the angle measures.

8. $\angle 1 =$ _____

9. $\angle 2 =$ _____

10. $\angle 3 =$ _____

11. $\angle 4 =$ _____



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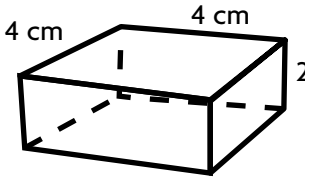
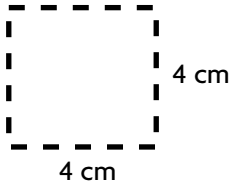
Name _____

Transformations of Solid Figures

Tell how many ways you can place the solid figure on the outline.



1.



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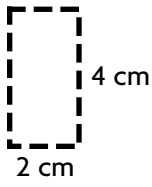
2.



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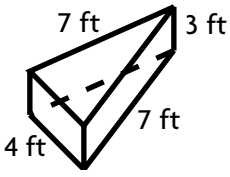

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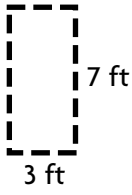

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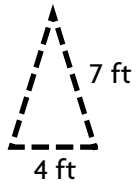
4.



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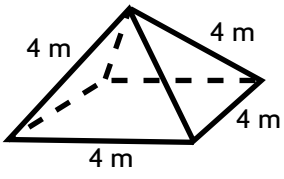
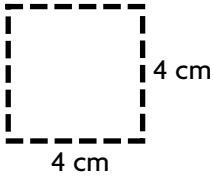


5.



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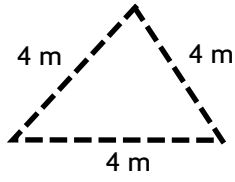
6.



_____

Mixed Review

Write the next three terms in each sequence.

7. 5, 7, 9, 11, 13, _____

_____

8. 2, 6, 18, 54, _____

_____

9. 12, 8, 4, 0, _____

_____

10. $^{-}5$, 10, $^{-}20$, 40, _____

_____

Find the circumference of the circle. Use 3.14 for pi (π).

11. $r = 15.25$ km

_____

12. $d = 33$ m

_____

13. $r = 5.5$ ft

_____

14. $d = 46$ in.

_____

15. $r = 8.5$ cm

_____

16. $d = 12.3$ dm

_____

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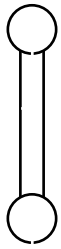
Name _____ LESSON 29.5

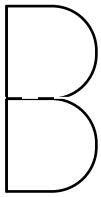
Symmetry

Draw lines of symmetry.

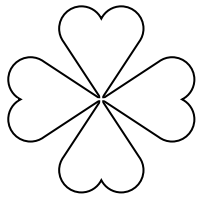
1.



2.

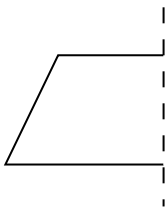


3.



Complete the other half of the figure across the line of symmetry.

4.

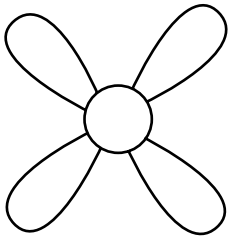


5.

6.

Tell whether each figure has rotational symmetry, and, if so, identify the symmetry as a fraction of a turn and in degrees.

7.



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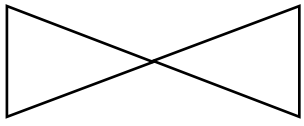
8.



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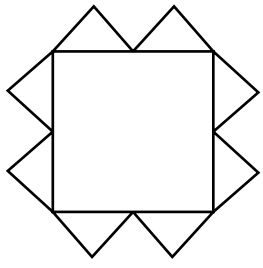
9.



_____

Mixed Review

Write the percent as a decimal.

10. 26% _____

11. 9% _____

12. 71% _____

13. 16.5% _____

Write the mixed number as a fraction.

14. $3\frac{3}{4}$ _____

15. $7\frac{1}{8}$ _____

16. $1\frac{5}{6}$ _____

17. $10\frac{3}{5}$ _____

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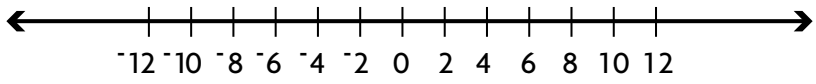
Name _____

LESSON 30.1

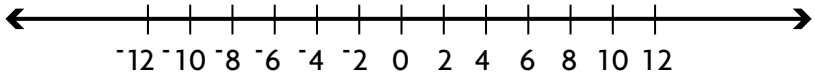
Inequalities on a Number Line

Graph the solutions of the inequality.

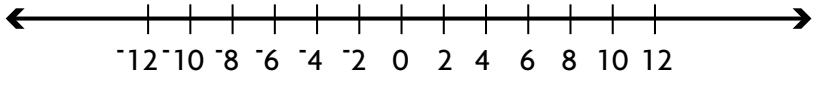
1. $x > 5$



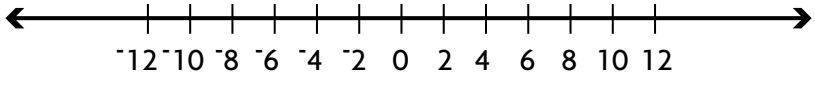
2. $x \leq -2$



3. $x \geq -1$

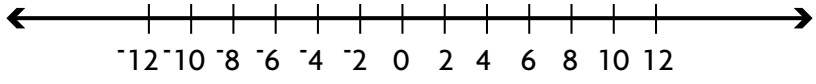


4. $x < 7$

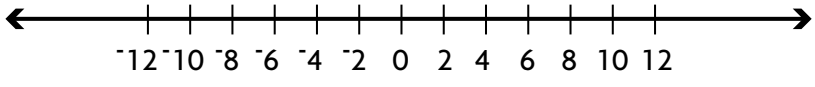


Solve the inequality and graph the solutions.

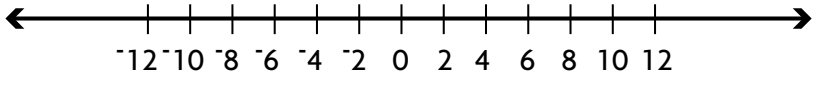
5. $x + 3 > 7$ _____



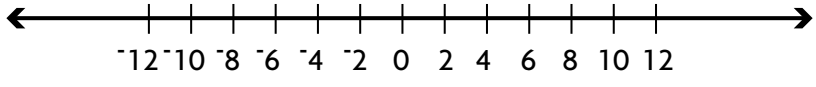
6. $n - 5 < 3$ _____



7. $2p \leq 6$ _____



8. $k + 7 > 7$ _____



For 9–10, write an algebraic inequality for the word sentence.

9. The value of m is greater than or equal to fifteen.

_____

10. The value of w is less than negative forty-three.

_____

Mixed Review

Find the area of each figure.

11. a parallelogram with base 6.2 ft and height 2.7 ft

_____

12. a trapezoid with bases 23 cm and 19 cm and height 11.4 cm

_____

13. a parallelogram with base 32.8 m and height 8.4 m

_____

Use a proportion to change to the given unit.

14. 3,500 lb = _____ T

15. 126 in. = _____ yd

16. 41 qt = _____ gal

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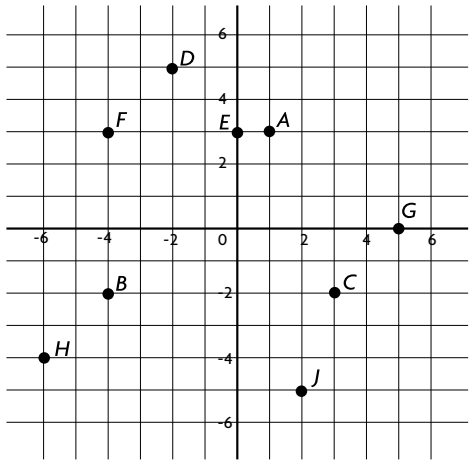
Name _____

LESSON 30.2

Graph on the Coordinate Plane

Write the ordered pair for each point on the coordinate plane.



1. point A _____

2. point B _____

3. point C _____

4. point D _____

5. point E _____

6. point F _____

7. point G _____

8. point H _____

9. point J _____

Use the coordinate plane above. Identify the points located in the given quadrant.

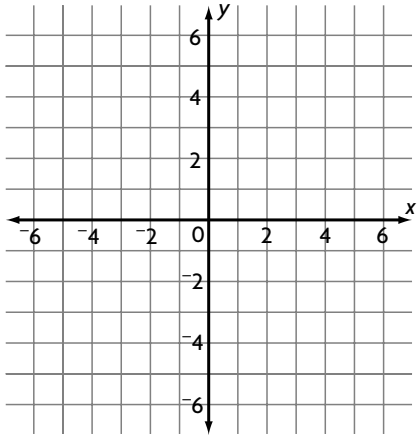
10. I _____

11. II _____

12. III _____

13. IV _____

Plot the points on the coordinate plane.



14. S (0,5)

15. T (2,2)

16. U ($^-$5,4)

17. V ($^-$2,$^-$2)

18. W (5,$^-$2)

19. X (6,0)

Mixed Review

Find the percent of the number.

20. 78% of 152 _____

21. 12% of 37 _____

22. 57% of 238 _____

23. 0.6% of 200 _____

Find the circumference of each circle. Use 3.14 for π.

24. $r = 7$ in _____

25. $d = 12$ ft _____

26. $d = 15$ m _____

27. $r = 30$ cm _____

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Name _____

Graph Functions

Complete the function table.

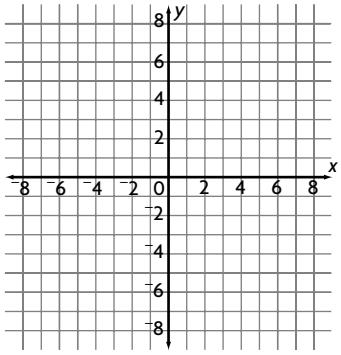
1.

x	1	2	3	4	5
y	3	4	5	___	___

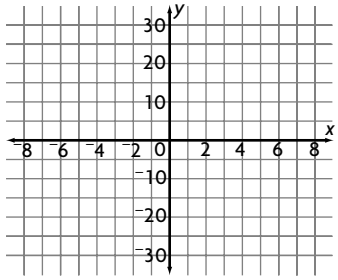
2.

x	1	2	3	4	5
y	5	10	15	___	___

3. Graph the data from Exercise 1 on the coordinate plane.



4. Graph the data from Exercise 2 on the coordinate plane.



5. Write an equation relating y to x for the data in Exercise 1.

_____

6. Write an equation relating y to x for the data in Exercise 2.

_____

7. Use the equation $y = x - 5$ to make a function table. Use the integers from $^{-}3$ to 3 as values of x.

x							
y							

Mixed Review

Find the number of possible choices for each situation.

8. 5 flavors of ice cream and 4 toppings

_____

9. 4 shirts, 6 ties, and 2 jackets

_____

10. 3 kinds of pancakes and 4 kinds of syrup

_____

Evaluate the expression for $n = {}^{-}3$, $^{-}1$, and 4.

11. $3n - 2(n + 5) + n$

_____

12. $5 + 2n - (6 + n)$

_____

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Name _____

LESSON 30.4

Problem Solving Skill: Make Generalizations

Solve by making a generalization.

Anita uses 2.5 c of flour to make a dozen muffins. The table shows the number of dozens of muffins made, *x*, for different amounts of flour, *y*.

***x* (doz)**	2	4	6	8	10
***y* (c)**	5	10	15	20	25

1. What equation can be used to show the amount of flour that Anita uses?

A $y = x - 2.5$ **C** $y = x + 2.5$

B $y = x \div 2.5$ **D** $y = 2.5x$

2. How much flour does Anita use to make 16 dozen muffins?

F 6.4 c **H** 20 c

G 18.5 c **J** 40 c

Anita charges $0.75 for each muffin.

3. Write an equation to show the cost, *m*, when Anita sells *n* muffins.

_____

4. How much will Anita charge for 15 muffins?

_____

Rick spends $8 on supplies for his dog-grooming business. The table shows his profit, *y*, for several income amounts, *x*.

x	$30	$35	$40	$45
y	$22	$27	$32	$37

5. What equation can be used to show Rick's profit?

A $y = 8 - x$ **C** $y = \frac{1}{8}x$

B $y = x - 8$ **D** $y = x + 8$

6. How much profit did Rick make if he earned $105?

F $113 **H** $101

G $109 **J** $97

Rick charges $35 for a regular dog grooming.

7. What equation can Rick use to show the amount that he earns, *y*, when he grooms *x* dogs?

_____

8. How much will Rick earn if he grooms 12 dogs?

_____

Mixed Review

Find the simple interest.

9. principal: $2,200
rate: 7.3%
time: 4 yr

_____

10. principal: $14,000
rate: 6.7%
time: 8 yr

_____

11. principal: $35,000
rate: 8.2%
time: 12 yr

_____

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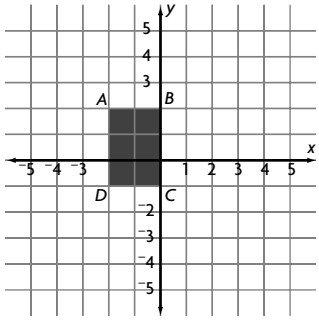
Name _____

Graph Transformations

Transform the figure according to the directions given.
Name the new coordinates.

1.

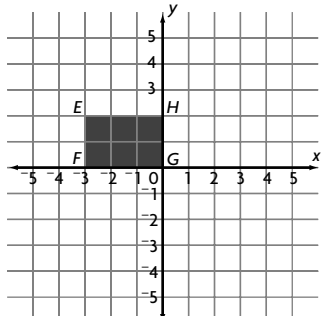


Translate 4 units right and 3 units up.

_____

_____

2.

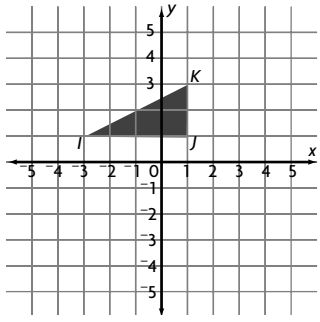


Reflect across the *x*-axis.

_____

_____

3.



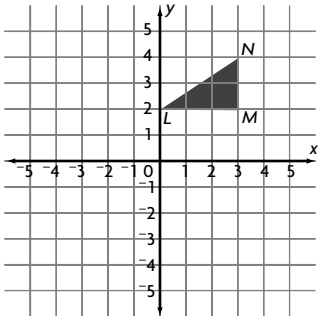
Reflect across the *x*-axis

_____

_____

Rotate the figure around the origin according to the directions given.
Name the new coordinates.

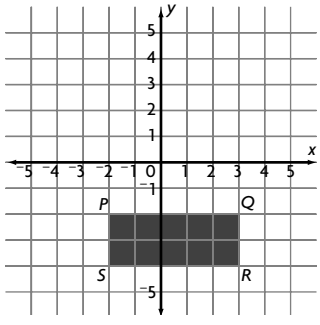
4. 90° clockwise



_____

_____

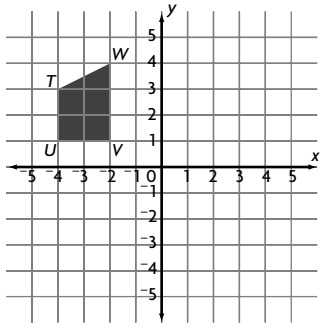
5. 180° counterclockwise



_____

_____

6. 90° counterclockwise



_____

_____

Mixed Review

Find the next three terms in each sequence.

7. 4, 12, 36, 108, . . .

_____

8. 27, 19, 11, 3, . . .

_____

9. 7, 11, 18, 29, . . .

_____

Solve and check.

10. $h + 12 = 37$

_____

11. $m + 8 = 19$

_____

12. $^{-}43 = 4 + p$

_____

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