1) Patti's Pet Palace has a 100 gallon fish tank. When it needs to be cleaned, it can be drained at a rate of 3 gallons per minute. Assuming the tank was initially full, which equation can be used to find *x*, the number of minutes the tank must drain before it contains 82 gallons of water? Please determine the equation and then solve for x.

A. 82= 100x -3 and x = 3
B. 82= 100- 3x and x = -3
C. 82= 3x and x = -6
D. 82= 100-3x and x = 6

x	*y*
-2	7
-1	8
0	9
1	10
2	11

2) Which equation could represent the data in the table?

A. y = -x + 9
B. y = 9x -1
C. y = x +9
D. y = -9x + 9

3) Leo ran a 10 kilometer race in 95 minutes. Use the formula, *d* = *rt*, and 1 km = 1,000 m, to find the average rate at which Leo ran. If necessary, round your answer to the nearest tenth of a meter per minute.

A. 105.3 meters per minute
B. 950 meters per minute
C. 9.5 meters per minute
D. 52.6 meters per minute

4) Rowan invested $300 in an account that pays simple interest after 3 years according to the formula below.

$$I = Prt$$

In the formula, *I* represents interest, *P* represents the money invested, or principal amount, *r* is the simple interest rate, and *t* represents the time, in years, that the money is invested.

If Rowan earned $36 in interest from the account, what is the interest rate of the account?

A. 25%
B. 40%
C. 0.04%
D. 4%

5) Starla bought napkins at an outlet store for $1.75 each, and she also used a $15 off coupon. If Starla paid $27.00 before tax, how many napkins did she buy?

A. 15
B. 1
C. 27
D. 24

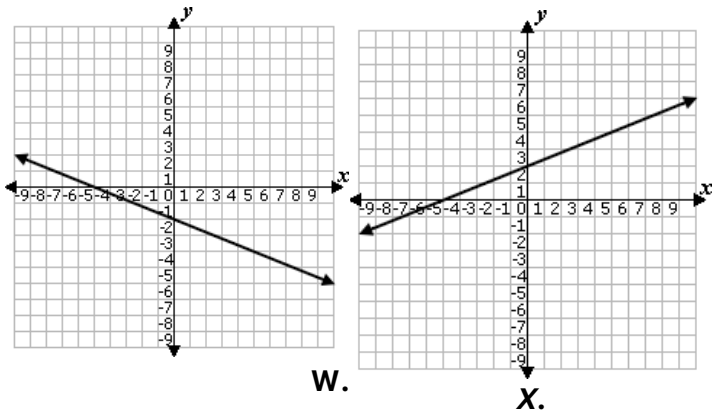
6) Ernie is taking a walking tour while on vacation in London, where the forecasted high temperature is 32°C. Use the formula below, where F is the temperature in degrees Fahrenheit, and C is the temperature in degrees Celsius, to find the forecasted high temperature in degrees Fahrenheit.

$$F = \frac{9}{5}C + 32^\circ$$

A. 89.6°F
B. 57.6°F
C. 64°F
D. 50°F

7. Micah has an electricity plan where he is charged a monthly fixed rate of $3.34 and a usage fee of $0.15 per kilowatt-hour. If Micah was charged $213.34 for electricity last month, how much electricity did he use?
A. 1,422 kilowatt-hours
B. 210 kilowatt-hours
C. 1,400 kilowatt-hours
D. 64 kilowatt-hours

8. Which of the following graphs represents the equation, $y = {}^{-2}/_{5}\,x - 2$?



A. W
B. X
C. Y
D. Z

9) Which graph best represents the solution to the following equation? $\frac{1}{5}x - 7 = 9$

A.

9
10
11

B.

1
2
3
4

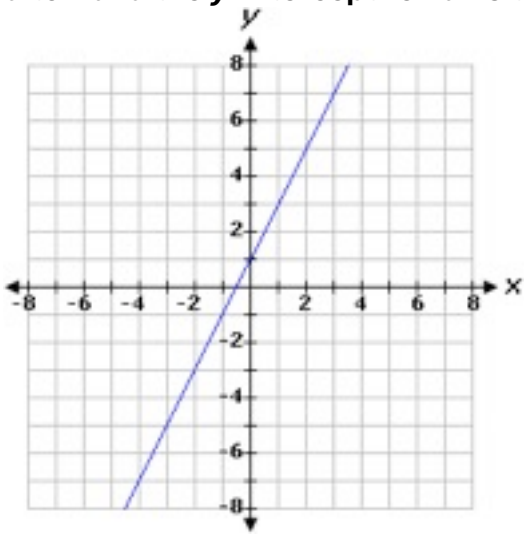
C.

79
80
81
82

D.

80
81
82
83
84
85
86

10) The graph of the equation $y = 2x + 1$ is shown. Which of the following statements is true if the slope of the equation is changed to $\frac{1}{2}$ and the *y*-intercept remains the same?



A. The new graph will intersect the *x*-axis at a location farther from (0, 0).
B. The new graph will intersect the *x*-axis at a location closer to (0, 0).
C. The new graph will intersect the *y*-axis at a location closer to (0, 0).
D. The new graph will intersect the *y*-axis at a location farther from (0, 0).

11) Solve for x. ½ x + 4 = 20

A. x = 16
B. x = 8
C. x = 32
D. x = 48

12) Which number line represents the solution to the inequality below?

$$\frac{5}{12}x + \frac{2}{3} \leq \frac{19}{6}$$

A.

0
1
2
3
4
5
6
7
8
9
10
11
12

B.

25
26
27
28
29
30
31
32
33
34
35
36
37

C.

27
28
29
30
31
32
33
34
35
36
37
38
39

D.

-9
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3

13) Solve the following inequality. $-9a + 11 \geq -88$

A. $a \leq 11$

B. $a \geq 11$

C. $a \geq 10$

D. $a \leq 12$

14) Norma earns $28 per hour. She donates 4% of her wages to her favorite charity. If she wants to have at least $980 left after her donation, how many hours must she work?

A. $H \geq 37$

B. $H \geq 11$

C. $H \geq 35$

D. $H \geq 39$

15) Jake is taking four of his friends to dinner. At the restaurant, a meal, side, dessert, and drink cost $6.13. The first drink is included with the meal, but each refill costs $0.75. (Assume these prices include tax.)

If Jake doesn't want to spend more than $39.00 on the meal, which of the following represent r, the number of refills Jake can have?

A. 20

B. 21

C. 11

D. 12

16. Which values of x makes the sentence true? $\frac{1}{2}x < \frac{8}{9}$

A. $x > \frac{4}{9}$

B. $x > \frac{9}{16}$

C. $x < \frac{9}{11}$
D. $x < \frac{16}{9}$

17. Which number shows 65×10^5 written in correct scientific notation?
A. 6.5×10^4
B. 6.5×10^5
C. 6.5×10^6
D. 6.5×10^7

18. The number 18.2×10^4 can also be expressed as:
A. 18,200
B. 182,000,000
C. 1,820,000
D. 182,000

19. A human red blood cell is about 0.000008 meter in diameter. Which of the following represents this number in scientific notation?
A. 0.8×10^{-6}
B. 8.0×10^{-6}
C. 0.8×10^{6}
D. 8.0×10^{6}

20. The Table Below lists the weights of four planets.

Planet	Mass (kg)
Mars	1.76×10^{22}
Jupiter	2.1×10^{26}
Earth	5.98×10^{23}
Saturn	2.01×10^{26}

Which lists these planets in order from least to greatest mass?

A. Mars, Saturn, Earth, Jupiter
B. Jupiter, Saturn, Earth, Mars
C. Mars, Earth, Saturn, Jupiter
D. Mars, Earth, Jupiter, Saturn

21) An environmental scientist estimated the number of drops of water in two different jugs. He estimated that the smaller jug contains 503,000,000 drops of water and the larger jug contains 1,480,000,000 drops of water. What is the difference between the number of drops of water in the larger jug and the number of drops of water in the smaller jug?

A. 7.44×10^9 drops of water
B. 3.55×10^8 drops of water
C. 1.983×10^9 drops of water
D. 9.77×10^8 drops of water

22) If $\frac{c^6}{c^4} = 9$, what is the value of $\frac{c^{12}}{c^8}$?

A. 3

B. 9
C. 18
D. 81

23) Which is this expression equivalent to? $\left(6.73 \times 10^{5}\right) - \left(4.2 \times 10^{4}\right)$

A. 631,000
B. 253,000
C. 25,300
D. 725,000

24) A sodium hydroxide solution contains 7.8×10^{-5} **kg of sodium hydroxide. A sodium chloride solution contains** 1.1×10^{-7} **kg of sodium chloride. Which estimate best describes the quotient shown?**

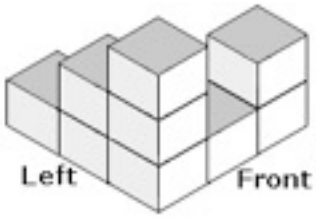
$$\frac{7.8 \times 10^{-5}}{1.1 \times 10^{-7}}$$

A. between 7,500 and 8,500
B. between 0 and 13
C. between 700 and 900
D. between 0 and 1

25) Dallas is 1.1×10^{6} **feet from Tulsa. Oklahoma City is** 5.6×10^{5} **feet from Tulsa. Which estimate best describes the quotient shown?** $\frac{\left(1.1 \times 10^{6}\right)}{\left(5.6 \times 10^{5}\right)}$

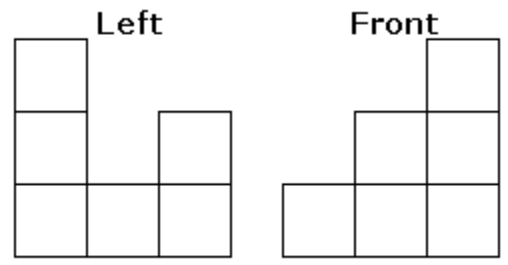
A. Between 0 and 1
B. Between 1 and 2
C. Between 5 and 15
D. Between 15 and 100

26) The drawing represents a 3-dimensional figure.

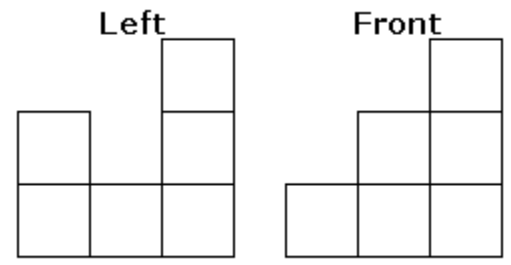


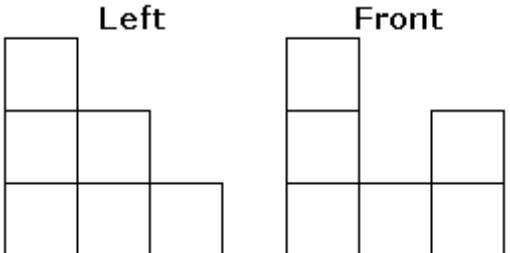
Which of the following represent the left and front views of the figure?

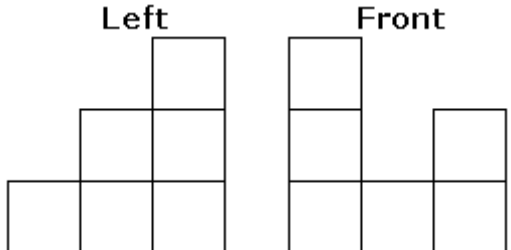
W.



X.

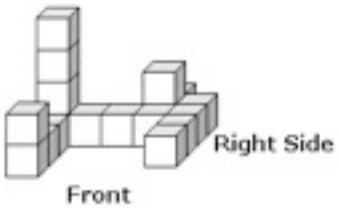




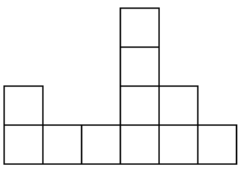


A. W
B. X
C. Y
D. Z

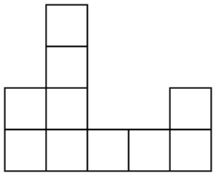
27) The drawing represents a 3-dimensional figure.



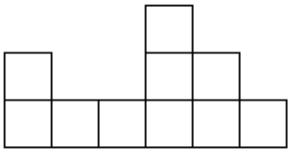
Which of these represents the view from the left side of the figure?



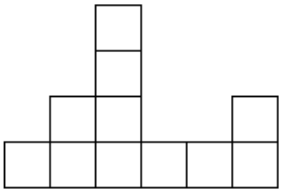
W.



X.



Y.

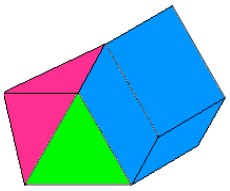


Z.

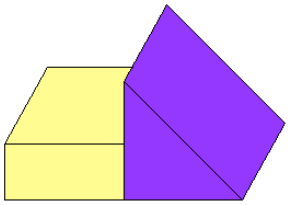
A. W
B. X
C. Y
D. Z

28) **Which of the following is a geometric figure with eight vertices, four lateral faces, and congruent bases?**

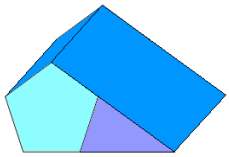
two



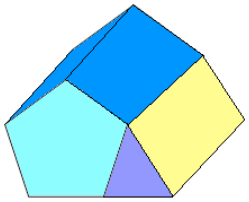
W.



X.



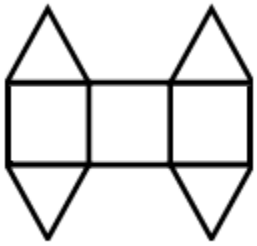
Y.



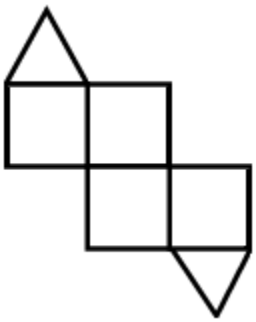
Z.

A. W
B. X
C. Y
D. Z

29) **Which of the four nets shown below can be folded into a triangular prism?**



W.



X.

A. W
B. X
C. Y
D. Z

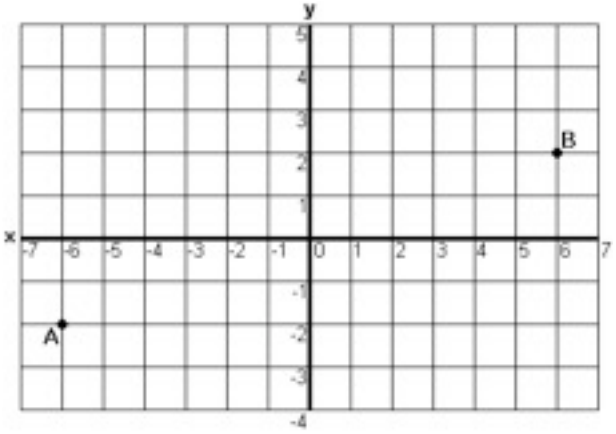
30) Alfonso is thinking of a three-dimensional object.

- **The object has 6 faces.**
- **The object has 12 edges.**
- **The faces of the object are not all congruent.**

Which figure is Alfonso thinking of?

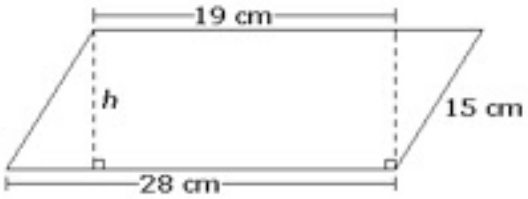
A. triangular prism
B. cube
C. triangular pyramid
D. rectangular prism

31) Find the distance between point A and point B.



A. 12 units
B. $4\sqrt{10}$ units
C. 4 units
D. $8\sqrt{2}$ units

32) The figure shows some of the dimensions of a parallelogram.



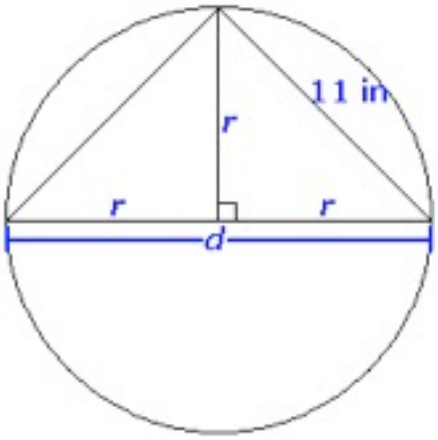
Note: Figure not drawn to scale

What is *h*, the height of the parallelogram?

A. 12 cm
B. 24 cm
C. 6 cm
D. 17 cm

33) What is the diameter, *d*, of this circle?

A. $\sqrt{\frac{121}{2}}$ in
B. 11 in
C. $2\sqrt{\frac{11}{2}}$ in
D. $2\sqrt{\frac{121}{2}}$ in



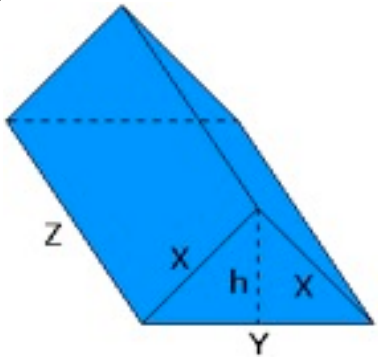
34. What is the length of the shortest side of a triangle that has vertices at (-6, -5), (-5, 6), and (-2, 2)?

A. $\sqrt{7}$ units
B. 5 units
C. 9 units
D. $2\sqrt{5}$ units

35) A soup can has a height of 4.25 inches and a diameter of 3.25 inches. Which of the following is the closest to the volume of the soup can?

A. 46 cubic inches
B. 22 cubic inches
C. 141 cubic inches
D. 35 cubic inches

36)

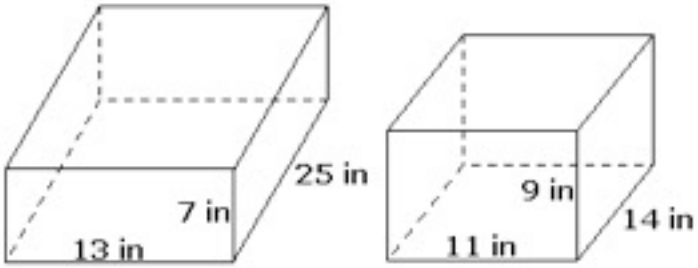


Note: Figure not drawn to scale. Height has been rounded for computational ease.

If X = 8 units, Y = 11 units, Z = 15 units, and h = 6 units, then what is the surface area of the triangular prism shown above?

A. 495 square units
B. 537 square units
C. 471 square units
D. 426 square units

37) Coral has two shoe boxes that are rectangular prisms with the dimensions shown.

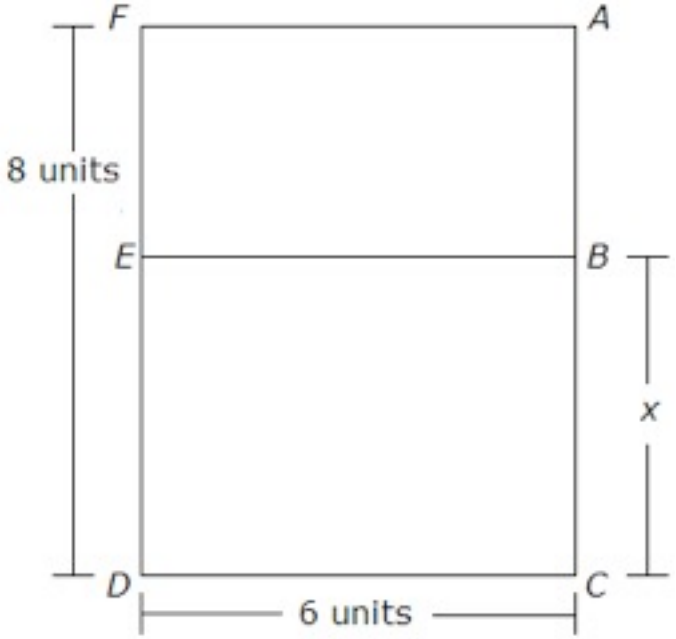


Note: Figure not drawn to scale

What is the difference in the volumes of the two rectangular prisms in cubic inches (cu in)?

A. 889 cu in
B. 1,539 cu in
C. 287 cu in
D. 44 cu in

38) Look at the figure below. Rectangle *FACD* and rectangle *DEBC* are similar.

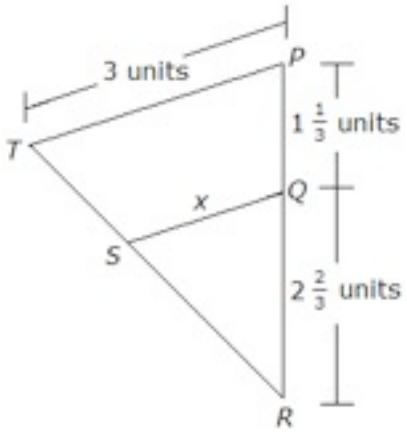


What is the value of *x*?

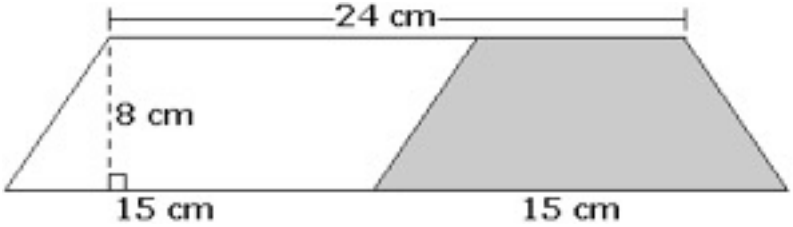
A. $4\frac{1}{2}$ units
B. 4 units
C. 3 units
D. $3\frac{1}{2}$ units

39) **Triangles *TPR* and *SQR* are similar. What is the value of x?**

A. $2\frac{1}{3}$ units
B. 2 units
C. $1\frac{2}{3}$ units
D. 1 unit



40) The figure shown is made up of a parallelogram and a trapezoid.

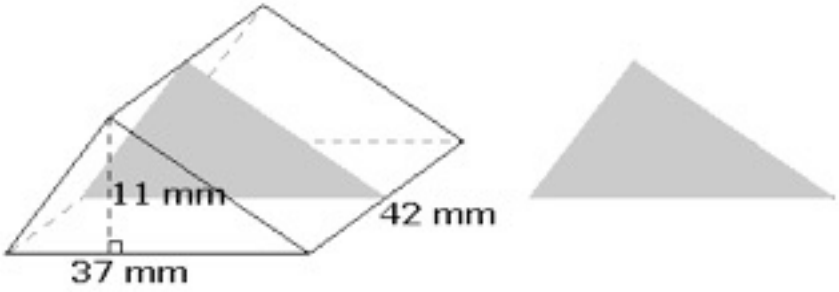


Note: Figure not drawn to scale

What is the area, in (cm^2), of the shaded region?

A. 96 cm^2
B. 216 cm^2
C. 192 cm^2
D. 120 cm^2

41) A triangular prism with a length of 42 mm, a width of 37 mm, a height of 11 mm, and its cross section are shown below.

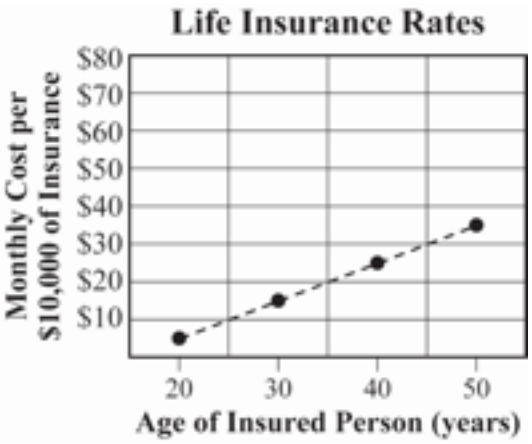


Note: Figure not drawn to scale.

What is the area of the cross section shown?

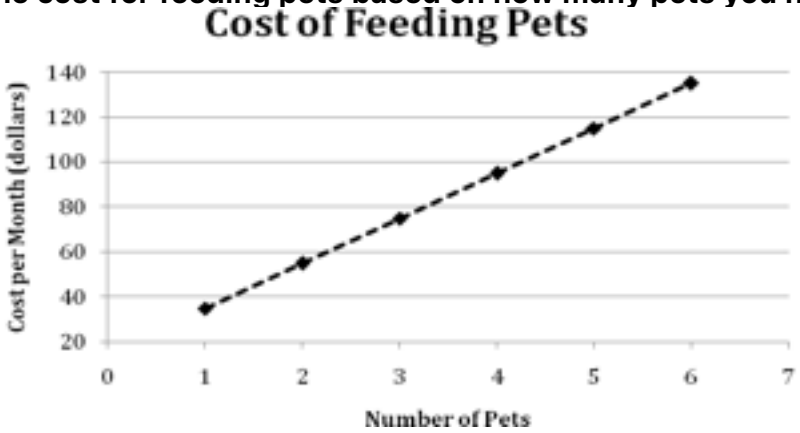
A. 388.5 mm^2
B. 231 mm^2
C. 203.5 mm^2
D. 55 mm^2

42) An insurance salesman uses this graph to determine life insurance costs. The *y*-axis shows the monthly cost for every $10,000 of insurance purchased. Which is closest to the monthly cost for $10,000 of life insurance for a person who is 30 years of age?



A $15
B $30
C $150
D $300

43) The cost for feeding pets based on how many pets you have is shown in the graph below.

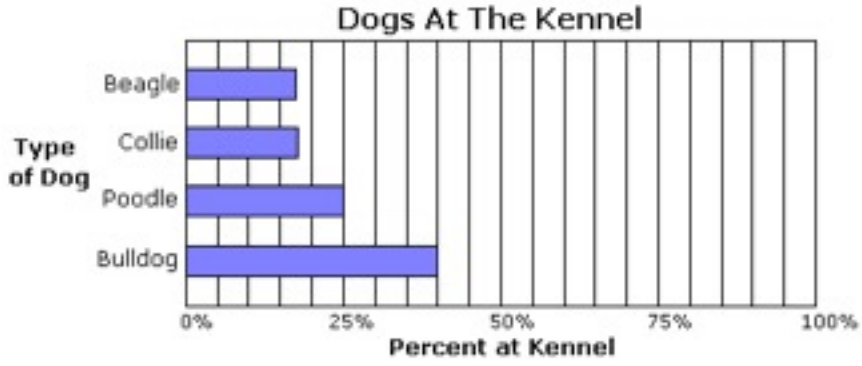


The y-axis shows the cost per month for feeding pets. What is <u>closest</u> to the cost of feeding three pets for four months?

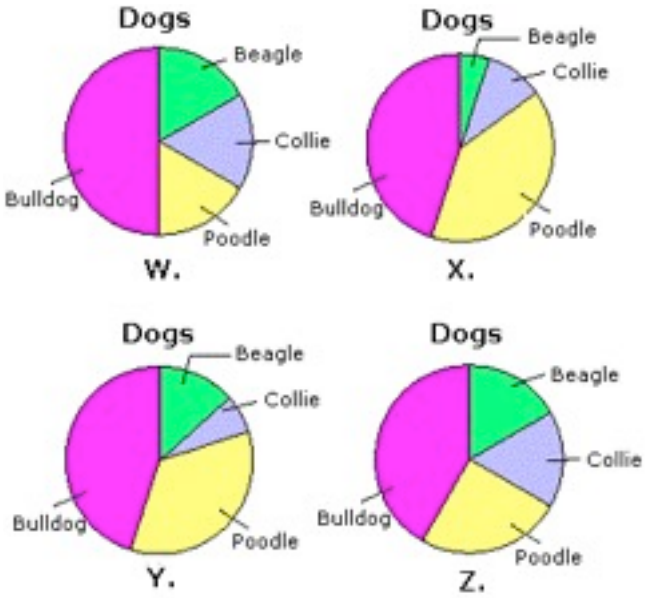
A. $25
B. $75
C. $300
D. $325

44)

A. W
B. X
C. Z
D. Y



Which pie graph below matches the data in the bar graph above?



45) Alexis determined the following information about a set of six numbers:
The median is 36, the mode is 28, the mean is 36

Which set could be the six numbers Alexis used?
A. 28, 28, 30, 42, 44, 46

B. 28, 28, 32, 36, 42, 50

C. 28, 28, 35, 37, 43, 45

D. 28, 30, 36, 36, 41, 45

46) A group of friends went bowling. Use the data set below to determine the mean score of Bradley and Bill.

Bowler	Game 1	Game 2	Game 3
Tom	205	162	173
Bradley	200	174	186
Bill	185	210	185
Casey	184	220	162

A. 187

B. 172

C. 185

D. 190

47) Find the mean, median, and mode for the data set below:

35, 21, 34, 44, 36, 42, 29

A. Mean: 34.4, Median: 35, Mode: 36
B. Mean: 36.1 Median: 44 Mode: none
C. Mean: 35 Median: 34.4 Mode: 35
D. Mean 34.4 Median 35 Mode: none

48) Alejandra scored 85, 88, 92, and 87 on her first four math tests. She wants to have a mean of at least 90. What is the lowest score that Alejandra can get on her fifth test to reach her goal?

A. 85
B. 96
C. 97
D. 98

NAME _____ DATE _____

8th Grade Math Summative PERIOD _____

QUESTION	ANSWER		QUESTION	ANSWER
1			25	
2			26	
3			27	
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24			48	

KEY 8th Grade Math Summative

QUESTION	ANSWER		QUESTION	ANSWER
1	D		25	B
2	C		26	D
3	A		27	D
4	D		28	C
5	D		29	C
6	A		30	D
7	C		31	B
8	A		32	C
9	C		33	D
10	A		34	B
11	C		35	B
12	A		36	C
13	A		37	A
14	A		38	A
15	C		39	B
16	D		40	A
17	A		41	C

18	D		42	C
19	B		43	C
20	C		44	C
21	D		45	C
22	D		46	D
23	A		47	D
24	C		48	D

Assessment: 8th Grade Math		**Date Created: 6.20.2011**	
Created By: Amber Stangl			
LEARNING GOALS	**Alignment** *aligned to which questions on the assessment*	**Coverage** *# of questions on the assessment*	**Total Weight** *Overall % of total OCCT/ test coverage*
1.1 Equations: Identify, translate, and analyze attributes of algebraic and geometric representations of lines; write and solve linear equations in mathematical and real-world solutions	1-11	11	21%
1.2 Inequalities: Model, write, solve and graph one- and two-step linear inequalities with one variable	12-16	5	10%
2.1 Number Sense: Represent and interpret large numbers and numbers less than one in exponential and scientific notation.	17-20	4	8%
2.2 Number Operations: Use the rules of exponents, including integer exponents, to solve problems.	21-25	5	10%

3.1 Three Dimensional Figures: Construct models, sketch (from different perspectives), and classify solid figures such as rectangular solids, prisms, cones, cylinders, pyramids, and combined forms.	26-30	5	10%
3.2 Pythagorean Theorem: Develop the Pythagorean Theorem and apply the formula to find the length of line segments, the shortest distance between two points on a graph, and from the length of an unknown side of a right triangle.	31-34	4	8%
4.1 Measurement: Develop and apply formulas to find the surface area and volume of rectangular prisms, triangular prisms, and cylinders (in term of pi).	35-37	3	6%
4.2 Measurement: Apply knowledge of ratio and proportion to solve relationships between similar geometric figures.	38-39	2	4%
4.3 Measurement: Find the area of a “region of a region” for simple composite figures and the area of cross sections of regular geometric solids (e.g., are of a rectangular picture frame)	40-41	2	4%
5.1 Data Analysis: Select, analyze and apply data displays in appropriate formats to draw conclusions and solve problems	42-44	3	6%
5.3 Central Tendency: Find the measures of central tendency (mean, median, mode and range) of a set of data and understand why a specific measure provides the most useful information in a given context.	45-48	4	8%