

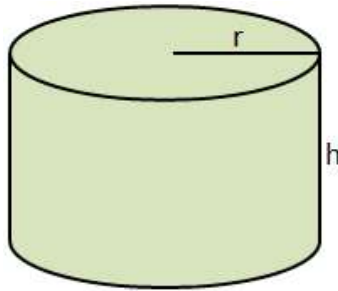
## 8<sup>th</sup> Grade Math Summer Break Assignment

Name: \_\_\_\_\_

Date: \_\_\_\_\_

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1.



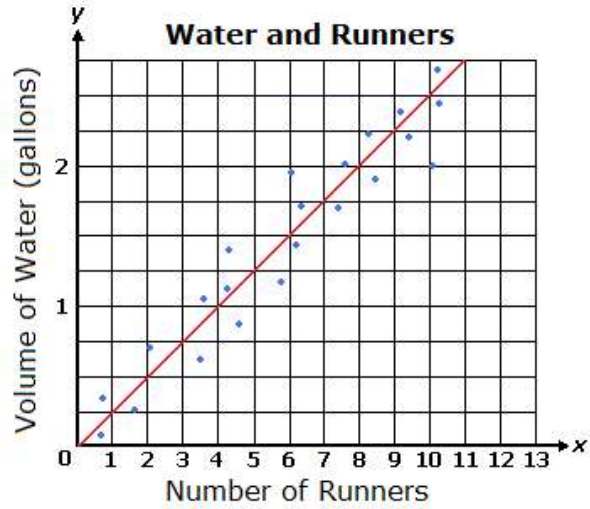
If  $r = 5$  units and  $h = 8$  units, what is the volume of the cylinder shown above? Use 3.14 for  $\pi$ .

- A. 1,004.8 cubic units
  - B. 628 cubic units
  - C. 329.7 cubic units
  - D. 251.2 cubic units
- 

2. Which of the following sets of numbers only includes rational numbers?

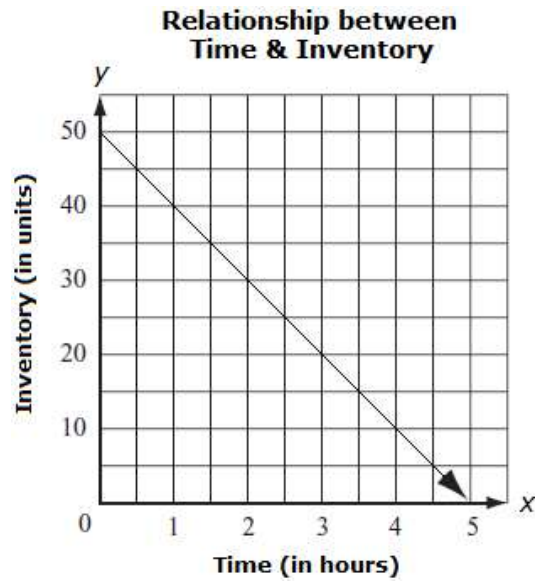
- A.  $3\frac{1}{3}$ ,  $\sqrt{65}$ , 15.86,  $\frac{1}{3}$
  - B. 2, 15.86,  $\frac{1}{5}$ ,  $\sqrt{224}$
  - C.  $\sqrt{65}$ ,  $\pi$ ,  $\sqrt{15}$ ,  $\frac{\pi}{2}$
  - D.  $\frac{1}{5}$ , 2.86,  $\sqrt{64}$ ,  $3\frac{1}{3}$
- 

3. Using the line of best fit, how many gallons of water would 13 runners be expected to drink?



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

4. A company analyzed how inventory was affected during the first five hours after a commercial aired for its product. The relationship is shown on the graph below.



What happens to inventory as each hour passes?

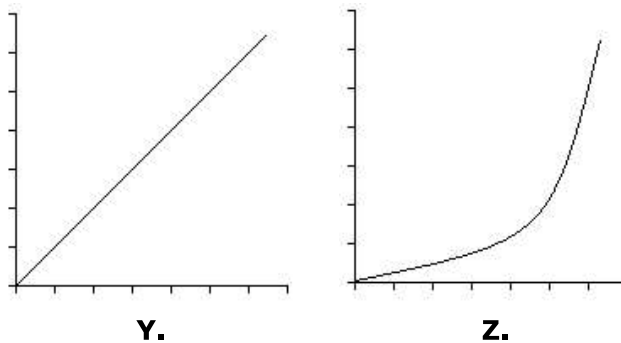
- A. The inventory decreases by 1 unit.
- B. The inventory decreases by 10 units.
- C. The inventory decreases by 5 units.
- D. The inventory decreases by 20 units.

5. Simplify the following expression.

$$\sqrt{100}$$

- A. 25
- B. 50
- C. 10
- D. 8

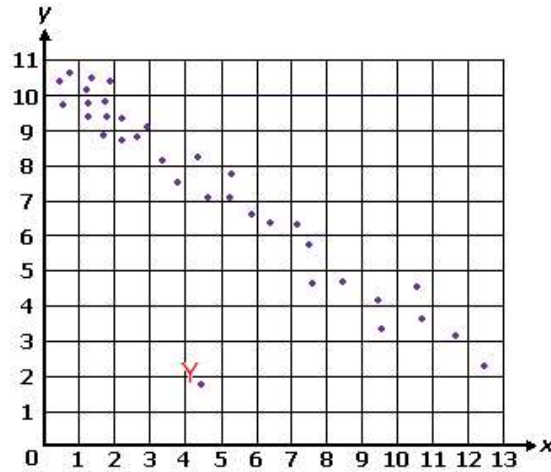
6. Sarah was conducting a science experiment to determine the rate of rabbit reproduction. The rabbits that she was studying multiplied at a nonlinear rate. Which of the following graphs could represent her results?



- A. Graph Z

- B. Graph Y and Graph Z
  - C. neither Graph Y nor Graph Z
  - D. Graph Y
- 

7. Which of the following best describes Y on the scatter plot below?



- A. outlier
  - B. nonlinear association
  - C. cluster
  - D. positive association
- 

8. What is the decimal expansion of the following fraction?

$$\frac{13}{20}$$

- A. 0.58
  - B.  $0.6\overline{25}$
  - C. 0.625
  - D.  $0.5\overline{8}$
- 

9. Between which two numbers does  $\sqrt{46}$  lie?

- A. between 8 and 9
  - B. between 6 and 7
  - C. between 5 and 6
  - D. between 7 and 8
- 

10. Convert the decimal below into a rational number.

$$0.\overline{1}$$

- A.  $\frac{1}{9}$

- B.  $\frac{1}{11}$
  - C.  $\frac{1}{10}$
  - D.  $\frac{11}{111}$
- 

11. Which of the following inequalities is true?

- A.  $\sqrt{3} > 1$
  - B.  $\sqrt{4} > \pi$
  - C.  $\sqrt{2} > \pi$
  - D.  $\sqrt{3} > 2$
- 

12. Triangle KLM has the coordinates  $K(-2, 2)$ ,  $L(2, 7)$ , and  $M(6, 2)$ . Which of the following sets of points represents a dilation from the origin of triangle KLM?

- A.  $K'(-6, 6)$ ,  $L'(6, 21)$ ,  $M'(18, 6)$
  - B.  $K'(-6, 2)$ ,  $L'(6, 7)$ ,  $M'(18, 2)$
  - C.  $K'(-6, 2)$ ,  $L'(2, 21)$ ,  $M'(18, 2)$
  - D.  $K'(1, 5)$ ,  $L'(5, 10)$ ,  $M'(9, 5)$
- 

13. Solve the equation given below.

$$\frac{2}{5}(x - 3.5) + 1.4 = \frac{7}{8}$$

- A. 9.18
  - B. 4.375
  - C.  $2\frac{3}{16}$
  - D.  $5\frac{7}{16}$
- 

14. Which of the following relations is a function?

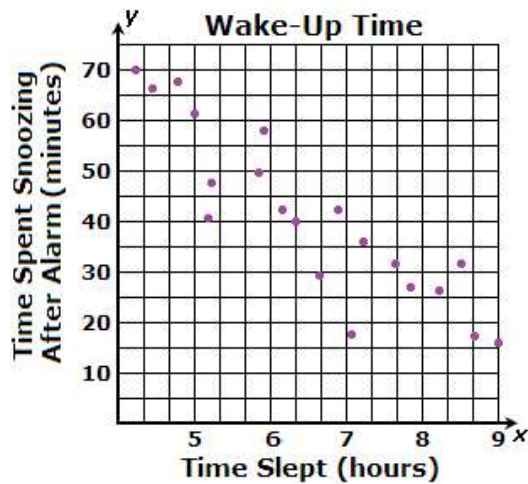
- A.  $(6, 11)$ ,  $(-8, 3)$ ,  $(-1, 9)$ ,  $(-1, -6)$
  - B.  $(-1, 11)$ ,  $(-8, 3)$ ,  $(-1, 9)$ ,  $(-8, -6)$
  - C.  $(6, 11)$ ,  $(-8, 3)$ ,  $(-1, 9)$ ,  $(-6, 11)$
  - D.  $(11, 6)$ ,  $(3, -8)$ ,  $(9, -1)$ ,  $(11, -6)$
-

15. Add the following values.

$$(4.4 \times 10^{13}) + (3.4 \times 10^{10})$$

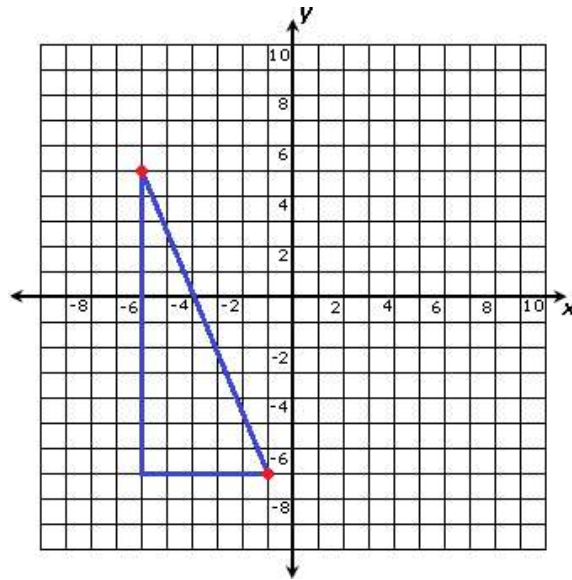
- A.  $4.434 \times 10^{10}$
  - B.  $4.40034 \times 10^{14}$
  - C.  $4.4034 \times 10^{13}$
  - D.  $4.40034 \times 10^{13}$
- 

16. Which of the following best describes the relationship between the amount of time spent snoozing and the amount of time slept?



- A. no association
  - B. positive and negative association
  - C. positive association
  - D. negative association
- 

17. Use the diagram below to find the distance between points  $(-6, 5)$  and  $(-1, -7)$ .



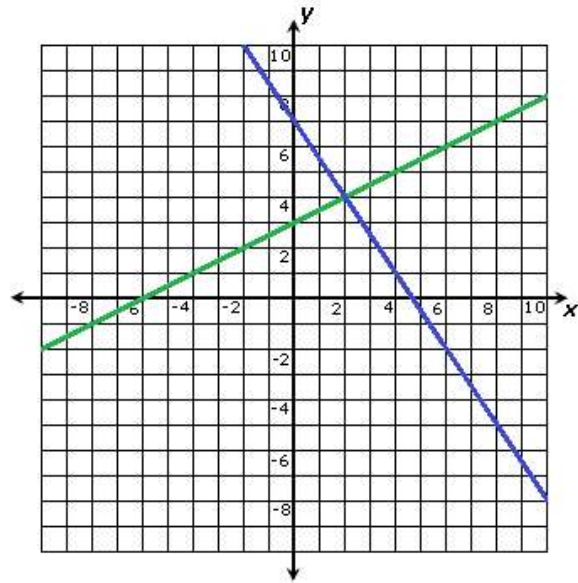
- A. 19 units
  - B. 17 units
  - C. 13 units
  - D. 6 units
- 

18.

$$y = \frac{1}{2}x + 3$$

$$y = -\frac{3}{2}x + 7$$

The system of equations above is graphed below.

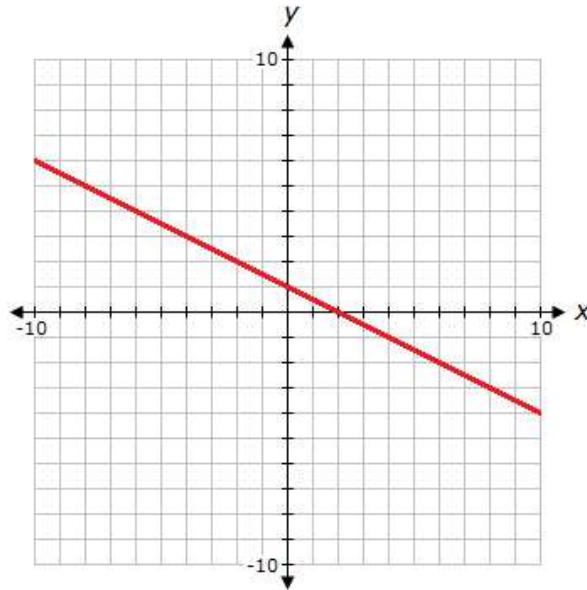


What is the solution to the system of equations?

- A. (4, 5)
  - B. (2, 4)
  - C. (0, 8)
  - D. (4, 2)
- 

19. Describe the behavior of the graph below.





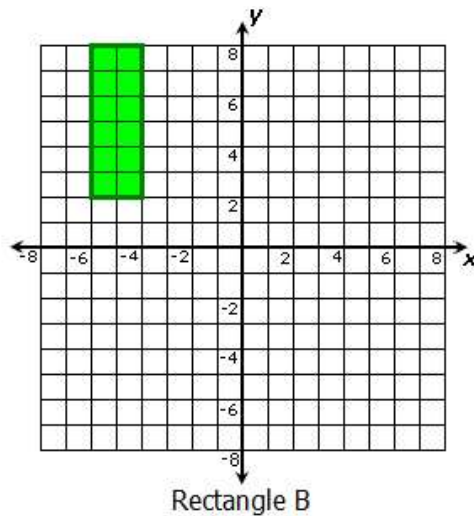
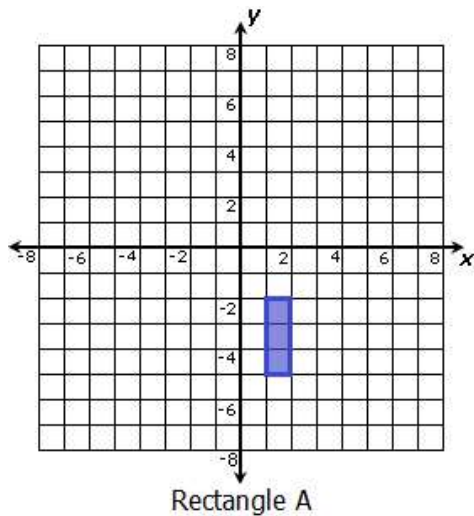
- A. As  $x$  increases,  $y$  increases at first until it reaches zero. After that,  $y$  decreases as  $x$  increases.
- B. The graph is decreasing for all values of  $x$ .
- C. As  $x$  increases,  $y$  decreases at first until it reaches zero. After that,  $y$  increases as  $x$  increases.
- D. The graph is increasing for all values of  $x$ .

20. Which of the following best describes the equation below?

$$y = \frac{2}{5}x - 10$$

- A. both linear and nonlinear
- B. linear
- C. neither linear nor nonlinear
- D. nonlinear

21. Which series of transformations shows that rectangle A is similar to rectangle B?



- A. Rotate rectangle A  $180^\circ$  about the origin, dilate it by a scale factor of  $\frac{1}{2}$ , and translate it 5 units to the left.
- B. Reflect rectangle A across the  $x$ -axis, dilate it by a scale factor of two, and translate it 8 units to the left and 2 units down.
- C. Rotate rectangle A  $180^\circ$  about the origin, dilate it by a scale factor of two, and translate it 5 units down and 6 units to the left.
- D. Reflect rectangle A across the  $x$ -axis, dilate it by a scale factor of  $\frac{1}{2}$ , and translate it 8 units to the left and 2 units down.
- 

22. The manager of a pizzeria collected data from customers on whether they prefer cheese, veggie, or pepperoni pizza and whether they prefer thin or regular crust pizza. The two-way table below shows the data collected.

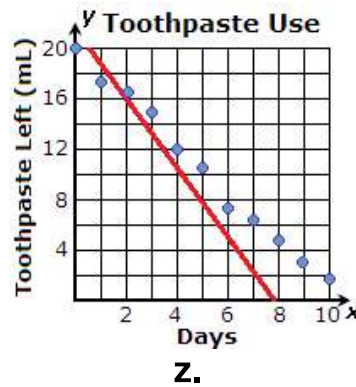
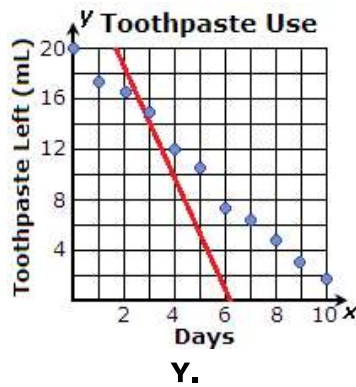
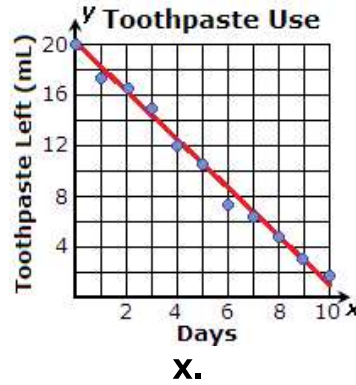
	Cheese	Veggie	Pepperoni	Total
Thin	38	42	25	105
Regular	20	13	62	95
Total	58	55	87	200

Which association does the two-way table suggest?

- A. Those who prefer regular crust pizza tend to prefer pepperoni pizza.
- B. Those who prefer thin crust pizza tend to prefer pepperoni pizza.

- C. Those who prefer regular crust pizza tend to prefer cheese pizza.
- D. None of the associations listed are correct.

23. Which of the scatter plots below shows the most accurate line of best fit?



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

24. Ninety members of a gym were asked whether or not they use a treadmill when they exercise and whether or not they lift weights when they exercise.

The results of the poll are as follows:

- 14 members do not use a treadmill or lift weights
- 31 members use a treadmill but do not lift weights
- 28 members lift weights but do not use a treadmill
- 17 members use a treadmill and lift weights

Which two-way table represents the information found in the poll?

	Use Treadmill	Do Not Use Treadmill
Lift Weights	17	28
Do Not Lift Weights	33	14

W.

	Use Treadmill	Do Not Use Treadmill
Lift Weights	17	31
Do Not Lift Weights	28	14

X.

	Use Treadmill	Do Not Use Treadmill
Lift Weights	14	28
Do Not Lift Weights	31	17

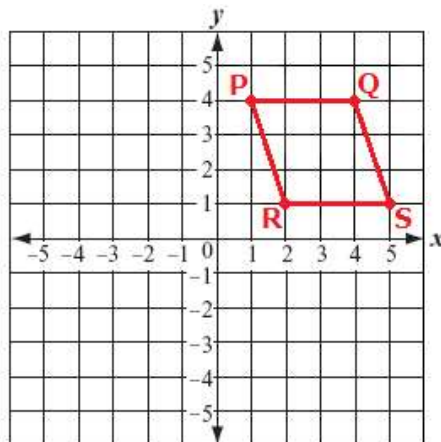
Y.

	Use Treadmill	Do Not Use Treadmill
Lift Weights	17	28
Do Not Lift Weights	31	14

Z.

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

25. Parallelogram PQSR is shown on the coordinate plane below. What are the coordinates of the image of point Q after parallelogram PQSR is reflected over the  $x$ -axis and then translated 2 units to the left?



- A. (2, 4)
- B. (4, -2)
- C. (2, -4)
- D. (4, 2)

26.



At what position on the number line is the red dot located?

- A.  $\sqrt{52}$
  - B.  $\sqrt{57}$
  - C.  $\sqrt{61}$
  - D.  $\sqrt{64}$
- 

27. Simplify the following expression.

$$3^6 \times 3^4$$

- A. 216
  - B. 59,049
  - C. 177,147
  - D. 72
- 

28. Which of the following best describes the equation below?

$$4(x + 6) + 5x = 9x - 24$$

- A. exactly one real solution,  $x = 9\frac{3}{5}$
  - B. no real solutions
  - C. infinite real solutions
  - D. exactly one real solution,  $x = -1$
- 

29. The lengths of the legs of a right triangle are 12 cm and 16 cm. What is the length of the hypotenuse?

- A. 56 cm
  - B. 14 cm
  - C. 28 cm
  - D. 20 cm
- 

30. Compare the rates of change of the following items.

$$y = x + 5$$

I

<b>x</b>	<b>y</b>
2	9
4	12
6	15
8	18
10	21

II

- A. The rate of change of item I is greater than the rate of change of item II.
  - B. The rate of change of item II is greater than the rate of change of item I.
  - C. The rate of change of item I is equal to the rate of change of item II.
-