

# Unit 6 Cumulative Review

Student \_\_\_\_\_

1. Which expression is equivalent to

$$\frac{3^{-4}}{3^{-2} \times 3^4}?$$

A.  $\frac{1}{3^{10}}$

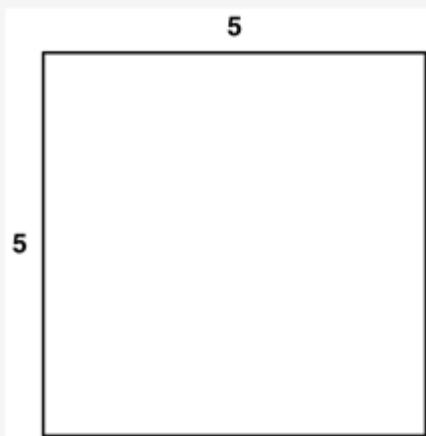
B.  $\frac{1}{3^6}$

C.  $3^2$

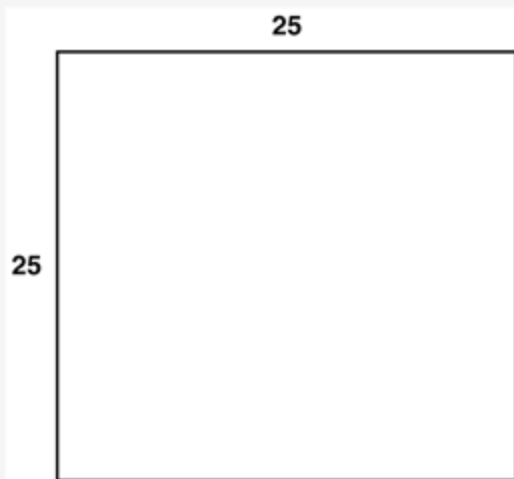
D.  $3^4$

2. Which model best represents  $\sqrt{625}$ ?

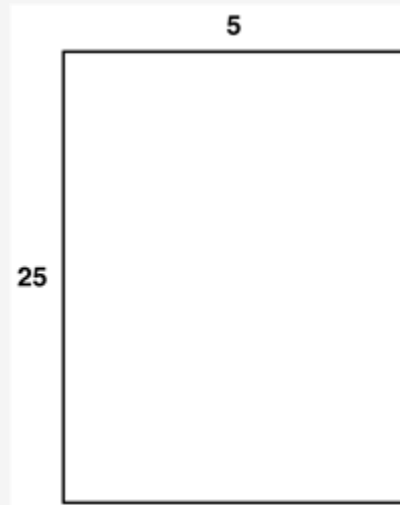
A.



B.



C.



3. The speed of light is approximately  $3 \times 10^8$  meters per second. While solving a problem, Cara used  $3 \times 10^{10}$  meters per second for the speed of light and got the incorrect answer. By which factor should Cara multiply her answer in order to get the correct answer?

A.  $10^{-18}$

B.  $10^{-2}$

C.  $10^2$

D.  $10^{18}$

4. What is 1,350,000 in scientific notation?

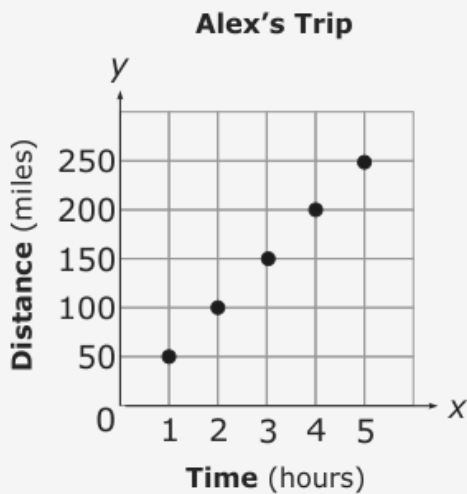
A.  $1.35 \times 10^{-6}$

B.  $1.35 \times 10^{-4}$

C.  $1.35 \times 10^4$

D.  $1.35 \times 10^6$

5. Alex and Susan are taking a trip. They are both driving at a constant speed. The graph shows the distance Alex has traveled.



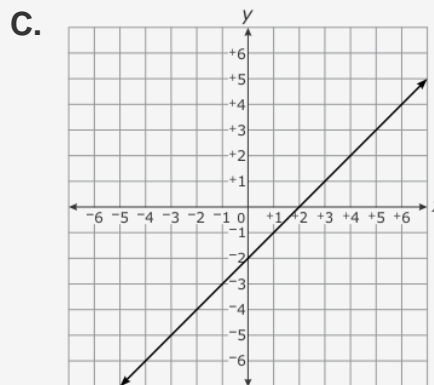
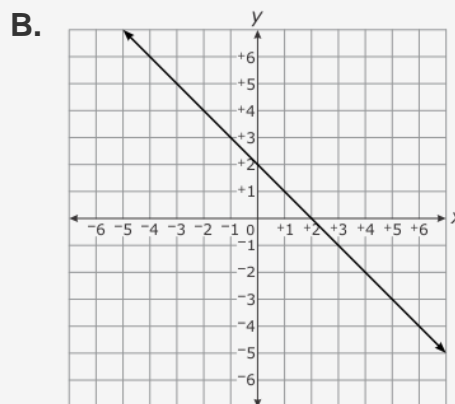
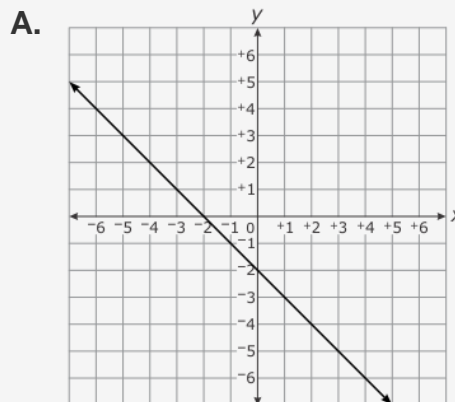
The table shows the distance Susan has traveled.

Time (hours)	2	3	4
Distance (miles)	90	135	180

After 6 hours, which statement is true?

- A. Alex has driven 5 miles farther than Susan.
- B. Alex has driven 30 miles farther than Susan.
- C. Susan has driven 5 miles farther than Alex.
- D. Susan has driven 30 miles farther than Alex.

6. Which is the graph of  $y = -x - 2$ ?



7. Which statement regarding the number of solutions for the linear equation shown below is true?

$$4(3x + 8) - 9 = 2(6x - 8) + 39$$

- A. There are infinitely many solutions.
- B. There are exactly two solutions.
- C. There is exactly one solution.
- D. There is no solution.

8. What is the first step in solving for  $z$  in the equation  $5z - 4 = 26$ ?
- A. Add 4 to both sides of the equation.
  - B. Subtract 4 from both sides of the equation.
  - C. Multiply both sides of the equation times 5.
  - D. Divide both sides of the equation by 5.

9. The sets of ordered pairs below represent relations.

I  $\{(0, 0), (1, 1), (2, 2), (3, 3), (4, 4)\}$

II  $\{(1, 2), (2, 1), (1, 3), (0, 1), (3, 1)\}$

III  $\{(0, 2), (1, 2), (2, 4), (3, 4), (3, 6)\}$

IV  $\{(1, 6), (2, 6), (3, 6), (4, 6), (5, 6)\}$

Which of these sets are also functions?

- A. I only
  - B. I and IV
  - C. II and III
  - D. II, III, and IV
10. Which equation could produce all the values shown in the table

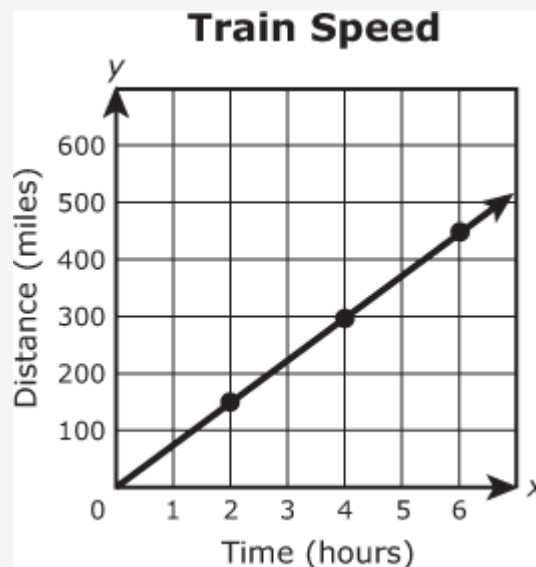
x	y
-1	2
2	5
8	65

- A.  $y = -2x$
- B.  $y = 2x^2 - 3$
- C.  $y = 8x + 1$
- D.  $y = x^2 + 1$

11. Which equation represents a linear function?

- A.  $y = \frac{1}{2}x^2 - 5$
- B.  $y = \frac{1}{2}x^3 - 5$
- C.  $y = \frac{1}{2}x + 5$
- D.  $y = \left(\frac{1}{2}\right)^x - 5$

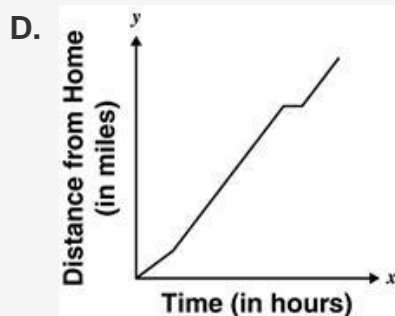
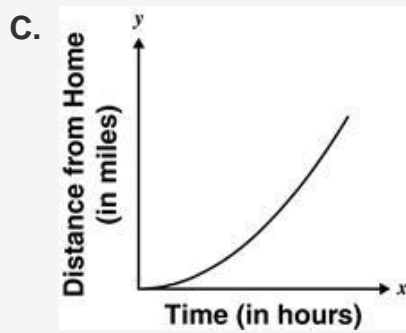
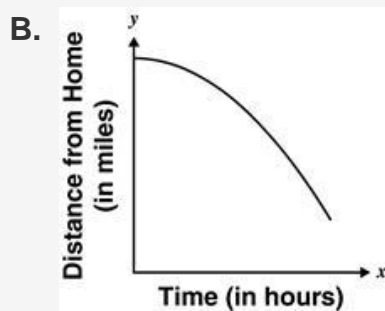
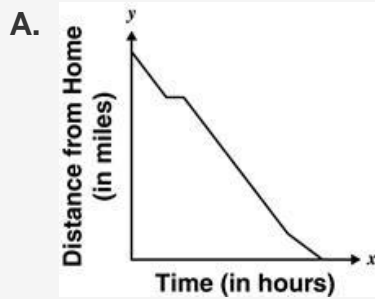
12. The graph below represents the relationship between the time and distance a train traveled



According to the graph, what is the average speed of the train in miles per hour?

- A. 150
- B. 100
- C. 75
- D. 50

13. Aki drove from home to visit a friend. His average speed during the first hour was 40 miles per hour (mph). For the next 3 hours he drove on the highway at 70 mph and then rested for 30 minutes. After the rest, Aki continued on the highway at 70 mph. Which graph best represents his distance from home as a function of time?



16. The vertices of a triangle are located at  $L(4, -3)$ ,  $M(1, -3)$ , and  $N(1, 0)$ . What is the *approximate* perimeter of triangle  $LMN$ ?

- A. 6.2 units  
 B. 10.2 units  
 C. 20.4 units  
 D. 38.2 units

17. Which set of numbers does not contain 70?

- A. integers  
 B. whole numbers  
 C. natural numbers  
 D. irrational numbers

18. The square root of 198 is between which two numbers?

- A. 12 and 13  
 B. 13 and 14  
 C. 14 and 15  
 D. 15 and 16