Math Unit 9 Volume Review

1. In which equation is y a nonlinear function of x?

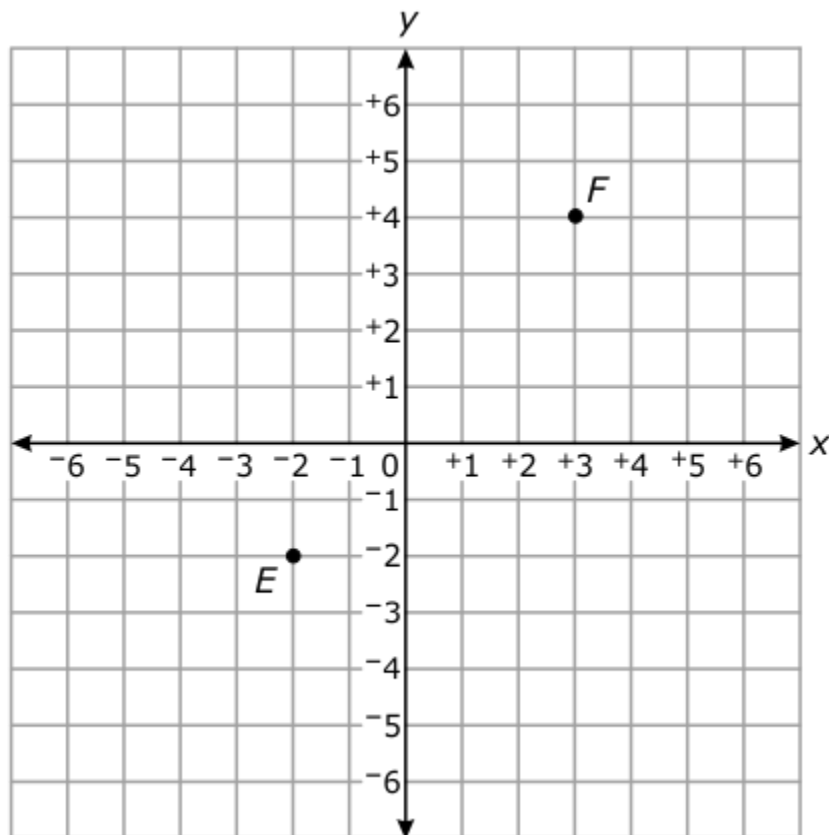   A. $y = 2x - 3$

   B. $3x + 2y = 10$

   C. $y = \dfrac{1}{x} + 7$

   D. $y = {}^-5x$

2. What is the *approximate* distance between points E and F on the graph below?

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3. What is the sum of all the integers between $\sqrt{19}$ and $\sqrt{77}$

4. Laura made two spherical pillows. Each pillow had a radius of 6 inches. *Approximately* what is the total volume of space Laura had to fill with stuffing?

5. Jason drove to the beach. He recorded his travel time and distance in the graph below.

Travel Time to the Beach
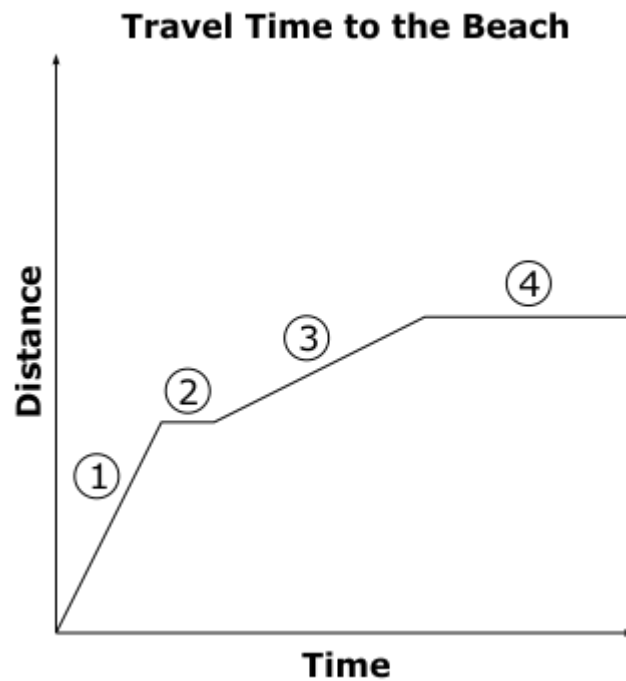
Which statement is true?

A. Jason's car was stopped at sections 2 and 4.
B. Jason was driving up a hill in sections 1 and 3.
C. Jason was driving faster at section 3 than section 1.
D. Jason drove the entire time to the beach.

6. What is the simplified form of the expression $(2^2)^4 * 2^{-5}$?

7. The area of this square is 144 square inches. What is the length of each side?
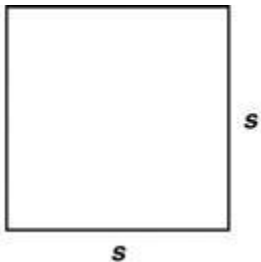
8. The mean distance from the Sun to Earth is 9.29×10^7 miles. Jupiter's mean distance from the Sun is 4.8388×10^8 miles. What is the difference between these two distances, in scientific notation?

9. A car rental company rents only one type of car. The table shows the cost to rent a car from the company. The rental cost includes a one-time base fee plus a constant rate for each day that a customer rents a car. What is the company's base fee?

Number of Days	Cost
2	72
3	85
4	98
5	111

10. Sandra and Monica are both saving money. The equation $y = 82x$ represents Sandra's savings after x weeks. The table below represents Monica's total savings after different amounts of weeks. After 15 weeks who has saved the most money and by how much?

Monica's Weekly Savings

Number of Weeks	Money Saved
4	$348
8	$696
11	$957

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11. A parking deck for a museum uses the equation $y = 2.75x + 5$ to calculate the cost, y, to park a car x number of hours. A parking deck for a hotel uses the table below to calculate the cost to park a car hourly. Which parking deck charges the most per hour and by how much?

Hotel Parking Deck

Hours	Cost
3	$14.75
6	$21.50
10	$30.50

12. A company has 5×10^4 square feet of office space. Another company has 8×10^3 square feet of office space. About how many times greater is the larger company's space than the smaller company's space?

13. **The table below contains a list of ordered pairs. Which equation represents the relationship between x and y?**

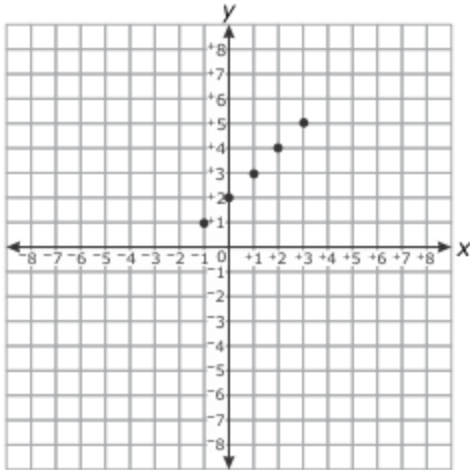| x	y
−2	7
−1	4
0	1
1	−2
2	−5

A. $y = -3x + 1$

B. $y = -3x - 1$

C. $y = 3x - 1$

D. $y = 3x + 1$

14. Point W is located at $(7, 3)$ on a coordinate plane. Point W is translated 2 units to the left and 3 units up. What are the coordinates of the image point W'?
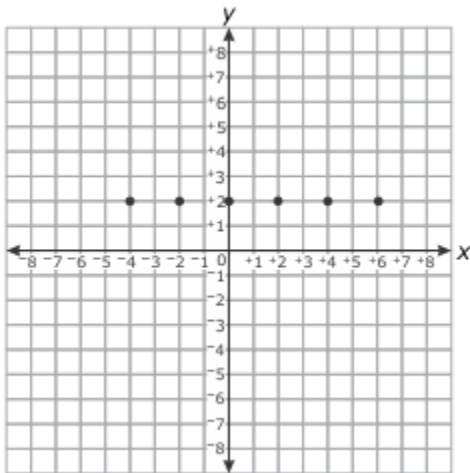
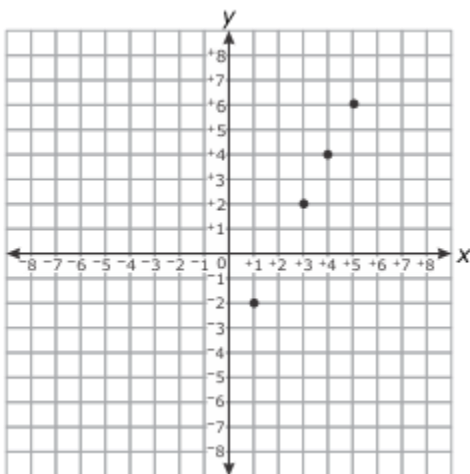**15.** In which graph do all of the plotted points lie on the line $y = x + 2$?

A.

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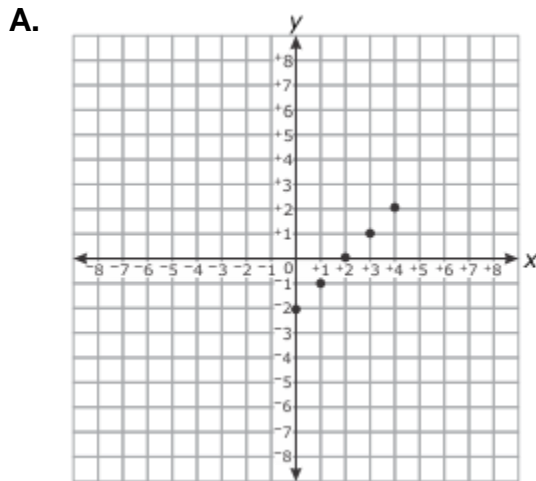
B.

C.

D.

16. The volume of a cone is 25π cubic inches. If the radius is 5 inches, what is the height of the cone?

17. In which choice do all the points lie on the same line?

    A. (0, -2), (1, -1), (2, 2), (3, 7)
    B. (0, 0), (1, 1), (2, 4), (3, 9)
    C. (0, 0), (1, 1), (2, 8), (3, 27)
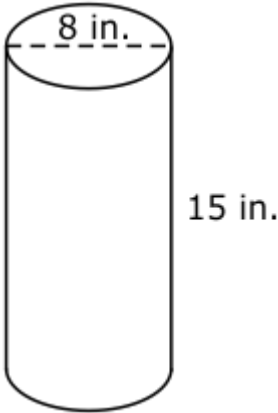   **D.** (0, 0), (1, 2), (2, 4), (3, 6)

18. The graph of the function below shows the total cost of renting a canoe at a park for different amounts of time. According to the graph, what is the cost of renting a canoe fort 6 hours?
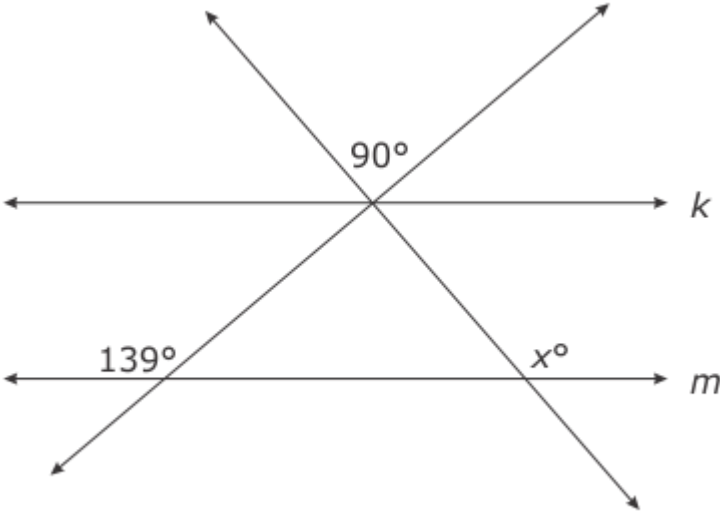
Canoe Rental
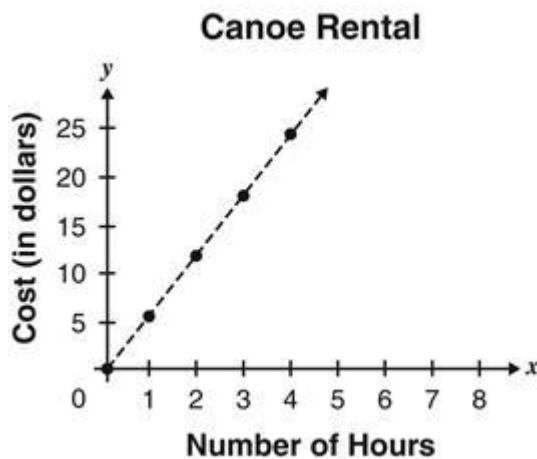
    A. $30   B. $36   C. $40   D. $42

19. A cylinder is shown below. What is the approximate volume of the cylinder?

8 in.

15 in.

20. In the figure below, lines *k* and *m* are parallel. Find x.


90°

k

139°

x°

m

21. What value of x satisfies the equation $\dfrac{-4x - 2}{3} = -6$?

22. When 8 is added to the number that is produced by doubling the number x, the result is equal to 8 times the number that is 5 less than x. What is the value of x?

23. Two stores sell cherries at different prices per pound.

- Store P sells 3.5 pounds of cherries for $13.30.
- The graph below shows the cost to purchase different weights of cherries at Store Q.
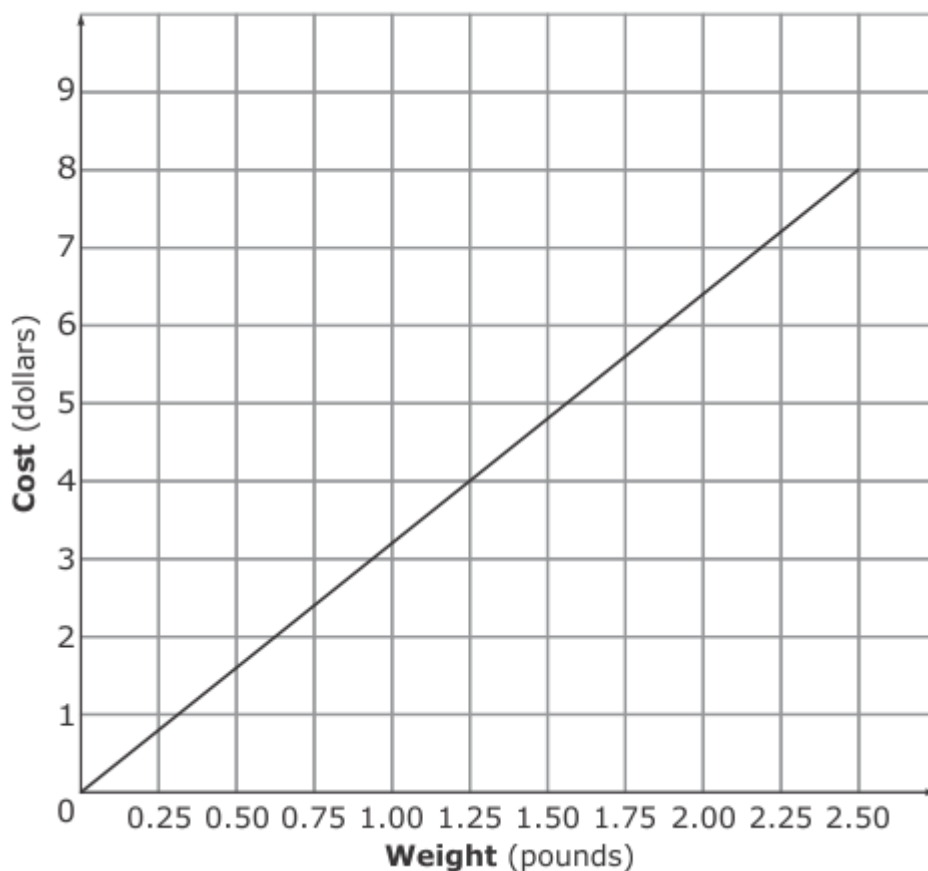
Phillip needs to purchase 10 pounds of cherries. Which statement below is true?

A. Phillip will spend $8.00 less on cherries at Store P than at Store Q.
B. Phillip will spend $8.00 more on cherries at Store P than at Store Q.
C. Phillip will spend $6.00 less on cherries at Store P than at Store Q.
D. Phillip will spend $6.00 more on cherries at Store P than at Store Q.

24. Jack is making 4 cylindrical wax candles. If he plans to make candles with a diameter of 7 cm and a height of 12 cm, approximately how many cubic centimeters of wax will Jack need to make the candles?
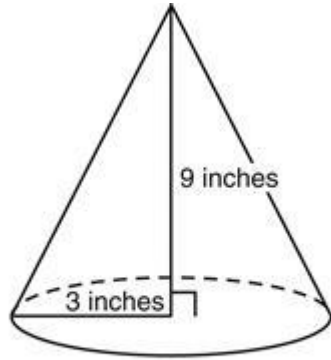
25. Which ordered pair (x, y) makes this relation a function?

$$\{(5, 6), (-2, 8), (7, 7), (-4, 8), (x, y)\}$$

A. (-3, 8)   B. (-2, 7)   C. (5, 7)   D. (7, 8)

26. A boat starts in Riverton and sails 5 miles North. Then, the boat sails East another 3 miles, forming a right angle. What is the ***approximate*** shortest distance back to Riverton? Round your answer to an integer.

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27. What is the exact volume of the cone below?

9 inches

3 inches

Note: The figure is not drawn to scale.

28. Molly wants to put a fence around an area. The fence will follow the diagram of the triangle shown below. About how much fencing will Molly need? Round your answer to the nearest integer.

10 ft

18 ft
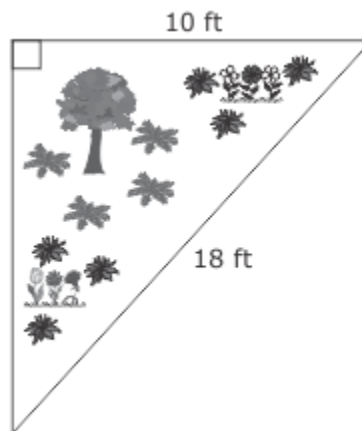
29. The diameter of a ping-pong ball is 4 cm. What is the ***approximate*** volume of the ball?

30. A plant grew $1.\overline{3}$ inches within the first month and $0.\overline{5}$ of an inch within the next month. How many total inches did the plant grow in the first two months? Write your answer in fraction form.