

TEST NAME: **Number System Worksheet**
TEST ID: **1108499**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

1. Which set of points are linear?

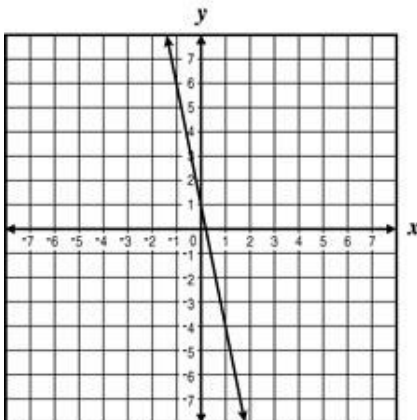
- A. $(-1, -2), (0, 6), (1, 2)$
- B. $(0, -4), (1, -1), (3, 5)$
- C. $(2, 3), (4, 2), (6, 3)$
- D. $(1, 1), (4, 16), (6, 36)$

2. The table of values represents a linear function.

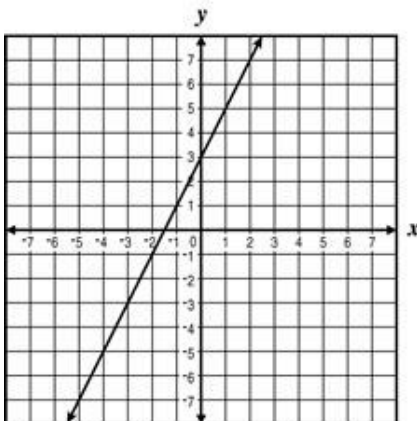
x	y
-1	-2
3	14

Which graph appears to have a line that is steeper than the line represented by the table of values?

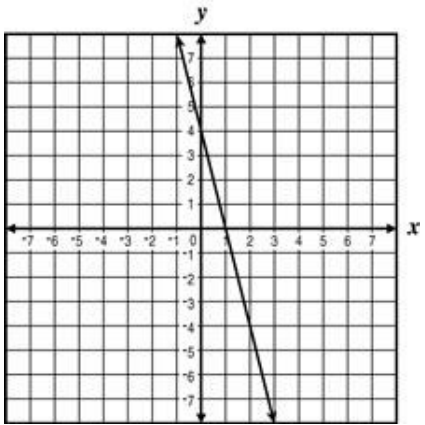
A.



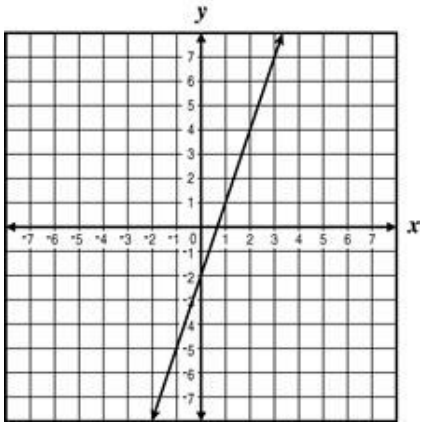
B.



C.



D.



3. Function $f(x)$ is represented by the table of values below.

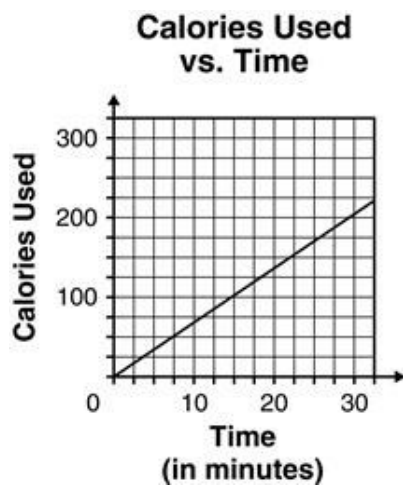
x	$f(x)$
0	0
1	1
5	25
10	100
12	144

Function $g(x)$ is represented by $4 \cdot 10^x$.

What is true of both functions?

- A. Neither function is linear.
- B. Neither function is exponential.
- C. The minimum of each function is at the origin.
- D. For both functions, the value of y varies inversely with the value of x .

4. The graph shows the number of calories that Majorie used while jogging.



Based on the graph, which statement is true?

- A. Majorie used exactly 50 calories jogging for 5 minutes.
- B. Majorie used exactly 100 calories jogging for 10 minutes.
- C. Majorie used less than 175 calories jogging for 30 minutes.
- D. Majorie used less than 150 calories jogging for 20 minutes.

5. Which function is represented by the values in the table below?

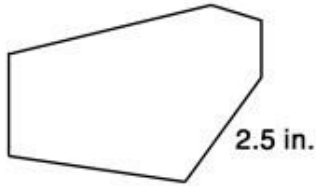
x	y
1	3
2	5
3	7
4	9

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

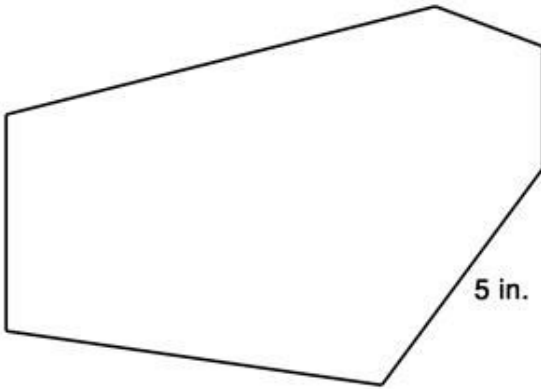
6. Which is an equation of the line that passes through the point $(2, 3)$ and has a slope of $\frac{1}{3}$?

- A. $y = 3x + \frac{1}{3}$
- B. $y = 2x + \frac{1}{3}$
- C. $y = \frac{1}{3}x + 3$
- D. $y = \frac{1}{3}x + \frac{7}{3}$

7. A class is making a quilt for a raffle prize. Two similar hexagonal shapes, A and B, are being used in the quilt.



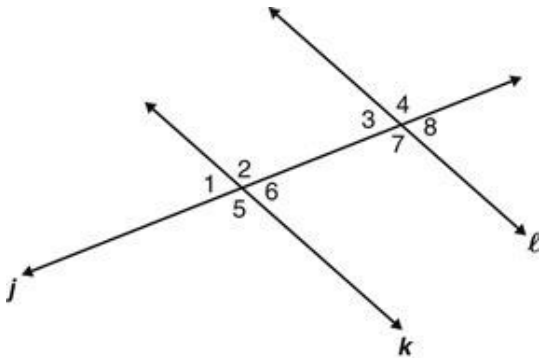
Shape A



Shape B

Which statement is true about the two shapes?

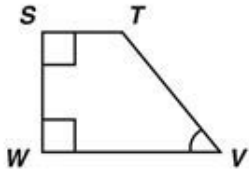
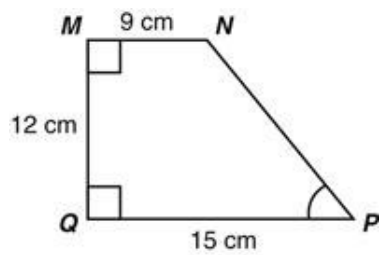
- A. The areas and perimeters of Shapes A and B are related by a ratio of 1:2.
 - B. The lengths of the sides and the perimeters of Shapes A and B are related by a ratio of 1:2.
 - C. The perimeters and angles at all vertices of Shapes A and B are related by a ratio of 1:2.
 - D. The angles at all vertices and the lengths of the sides of Shapes A and B are related by a ratio of 1:2.
8. Lines k and l are parallel and cut by transversal j .



Which statement is a valid conclusion?

- A. $\angle 4$ and $\angle 8$ form a linear pair
- B. $\angle 2$ and $\angle 7$ form vertical angles
- C. $\angle 6$ and $\angle 7$ are complementary
- D. $\angle 1$ and $\angle 2$ are congruent

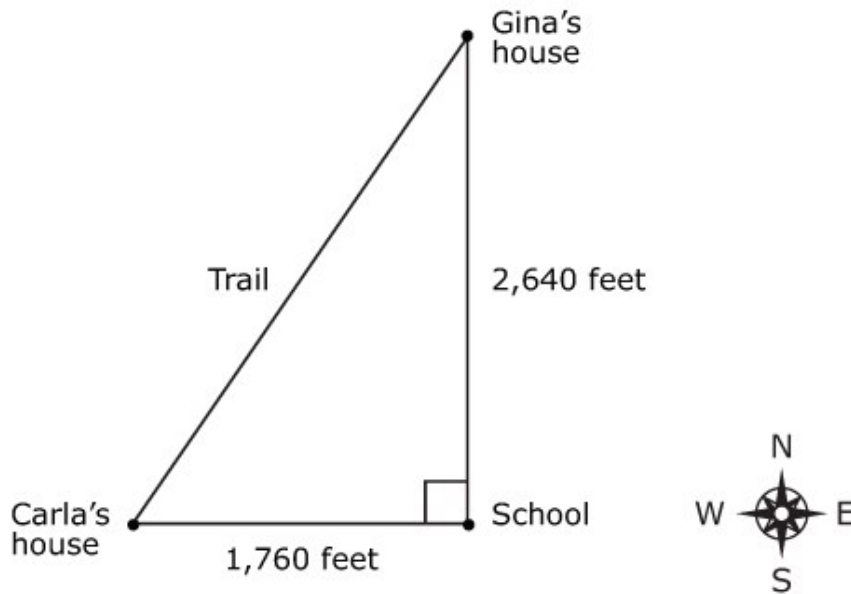
9. The two quadrilaterals shown are similar.



Based on these quadrilaterals, which ratios must be true?

- A. $\frac{12}{WS} = \frac{9}{WV}$
B. $\frac{12}{15} = \frac{WS}{ST}$
C. $\frac{15}{WV} = \frac{9}{ST}$
D. $\frac{15}{ST} = \frac{9}{WV}$

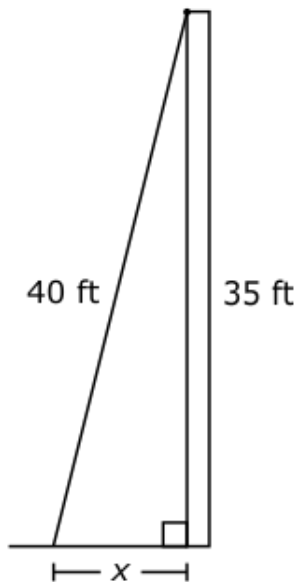
10. Gina lives 2,640 feet directly north of the school and Carla lives 1,760 feet directly west of the school. There is a trail between the two houses, as shown on the diagram.



Which distance is the closest approximation for the length of the trail?

- A. 4,400 ft
- B. 3,173 ft
- C. 1,968 ft
- D. 880 ft

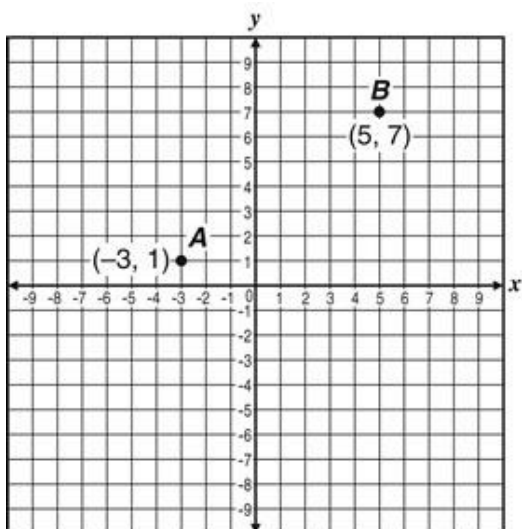
11. A 40-foot wire is attached to a pole and runs to the ground as shown below. The pole is 35 feet tall.



About how far away from the pole is the wire attached to the ground, x ?

- A. 19 feet
- B. 53 feet
- C. 75 feet

12. Point A and Point B are graphed on the grid below.



What is the distance between Point A and Point B, in units?

- A. 8 units
B. 10 units
C. 11 units
D. 14 units
13. The volume of a cylindrical container is 1 gallon. If the dimensions are dilated by a scale factor of $\frac{3}{4}$, what is the volume of the new container?
- A. $\frac{3}{4}$ gal
B. $\frac{27}{64}$ gal
C. $\frac{9}{16}$ gal
D. $\frac{9}{64}$ gal
14. Carlos is using a cylindrical plastic cup with a volume of 200 milliliters (mL) to water his plant. The height of the cup is 7 centimeters (cm). Given that 1 mL equals 1 cm^3 , what is the diameter to the nearest centimeter of the circular base of his cup?
- A. 3 cm
B. 6 cm
C. 9 cm
D. 10 cm

15. 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?
- A. 7,389
 - B. 6,333
 - C. 3,167
 - D. 1,847

16. Which number is irrational?

- A. $\frac{3}{16}$
- B. $\frac{2}{9}$
- C. $\sqrt{4 \times 4}$
- D. $\sqrt{2 \times 9}$

17. Explain why 9 is the best whole number estimate of $\sqrt{83}$.

- A. 83 is between 82 and 85, and 83 is closer to 82 than it is to 85.
- B. $\sqrt{83}$ is a perfect square.
- C. 9 is a perfect square.
- D. 83 is between 81 and 100 and 83 is closer to 9^2 than it is to 10^2 .

18. Terri is playing a math card game and has dealt each player four math cards.

Lisa: $2, \sqrt{2}, -5, \frac{1}{2}$

Ben: $0.\overline{435}, 0.5, \sqrt{25}, 0$

Kari: $\pi, 2, 6, -2$

Terri: $\sqrt{200}, \pi, \sqrt{50}, 1.43256744376665 \dots$

Which person's hand contains all rational numbers?

- A. Lisa
- B. Ben
- C. Kari
- D. Terri