

## End of Year 8<sup>th</sup> Grade Math Assessment

1. Alejandro wrote the number 6,240,000 in scientific notation. Which number did he write?

A  $62.4 \times 10^{-6}$                       C  $62.4 \times 10^5$   
 B  $6.24 \times 10^{-5}$                       D  $6.24 \times 10^6$

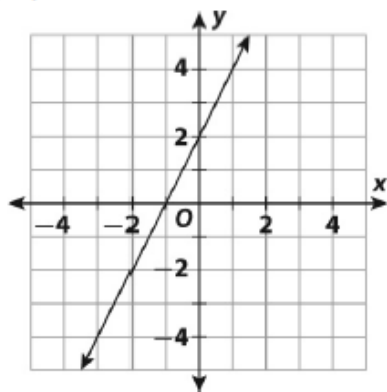
2. The lengths in centimeters of four line segments are shown below.

3.1, 3.5,  $3\frac{1}{5}$ , 4.2

Which list shows the lengths in order from **least to greatest**?

A 3.1,  $3\frac{1}{5}$ , 3.5, 4.2  
 B 3.1, 3.5,  $3\frac{1}{5}$ , 4.2  
 C  $3\frac{1}{5}$ , 3.1, 3.5, 4.2  
 D 4.2, 3.5,  $3\frac{1}{5}$ , 3.1

3. Which of the following is the equation of the line graphed below?



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

4. What is the value of  $n$  in the equation:

$$8n + 9 = -n?$$

A -1  
 B  $-\frac{7}{9}$   
 C 1  
 D 17

5. Which of the following tables represents a function?

A

x	1	4	4	5
y	-2	5	2	6

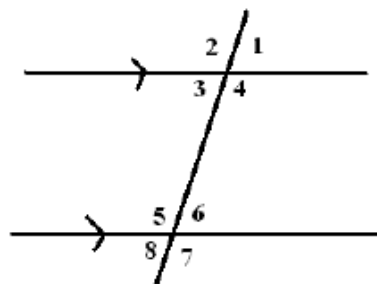
B

x	0	1	2	3
y	2	3	4	-3

C

x	0	1	2	2
y	1	5	5	8

6. The figure shows two parallel lines intersected by a transversal. Which pair of angles is congruent?



A  $\angle 1$  and  $\angle 2$                       C  $\angle 3$  and  $\angle 7$   
 B  $\angle 2$  and  $\angle 5$                       D  $\angle 5$  and  $\angle 6$

7. A diagonal shortcut across a rectangular lot is 100 feet long. The lot is 60 feet wide. What is the length of the lot?

A 40 ft                                      C 80 ft  
 B 60 ft                                      D 90 ft

8. The table shows the amount of gas used by a household over time. What is the slope of the data in the table?

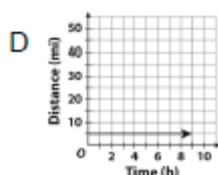
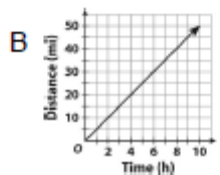
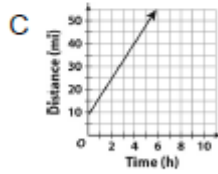
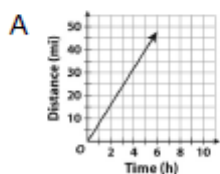
<b>Number of Weeks</b>	2	3	4	5	6
<b>Gas Used (ft<sup>3</sup>)</b>	80	120	160	200	240

A -160  
 B -40  
 C 40  
 D 80

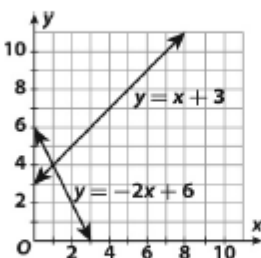
9. The equation below can be used to solve which of the following word problems?

$$2x + 15 = 4x$$

- A The price of four books is \$15 more than the price of two books. What is the price per book?
- B The price of two books is \$15 more than the price of four books. What is the price per book?
- C The price of four books equals \$15. What is the price per book?
- D John bought a certain number of \$2 books and \$4 books for a total of \$15. How many of each book did he buy?
10. Mariana rides her bicycle 5 miles per hour. Which graph represents this relationship?



11. What is the solution of the system of equations graphed below?



- A (0, 3)                      C (1, 4)
- B (0, 6)                      D (3, 0)
12. Which of the following best describes the number of solutions to the system of equations shown below?

$$\begin{cases} 2x + y = 3 \\ -4x - 2y = -6 \end{cases}$$

- A no solutions
- B one solution
- C two solutions
- D infinitely many solutions

13. Which expression represents 64?

- A  $2^3$                               C  $2^5$
- B  $2^4$                               D  $2^6$

14. The vertices of a triangle are located at the points  $A(0, 1)$ ,  $B(2, 4)$  and  $C(3, 0)$ . The triangle is translated 5 units down to obtain triangle  $A'B'C'$ . What are the coordinates of the vertices of triangle  $A'B'C'$ ?

- A  $A'(0, -4)$ ,  $B'(2, -1)$ ,  $C'(3, -5)$
- B  $A'(0, 6)$ ,  $B'(2, 9)$ ,  $C'(3, 5)$
- C  $A'(-5, 1)$ ,  $B'(-3, 4)$ ,  $C'(-2, 0)$
- D  $A'(5, 1)$ ,  $B'(7, 4)$ ,  $C'(8, 0)$

15. Jenya obtained the image of triangle  $ABC$  after a dilation with a scale factor of 3. The area of triangle  $ABC$  is 15 square centimeters, and its perimeter is 20 centimeters. Which of the following describes the area and perimeter of the new figure?

- A The area is  $45 \text{ cm}^2$  and the perimeter is 60 cm.
- B The area is  $135 \text{ cm}^2$  and the perimeter is 60 cm.
- C The area is  $45 \text{ cm}^2$  and the perimeter is 180 cm.
- D The area is  $135 \text{ cm}^2$  and the perimeter is 180 cm.

Use the table to answer questions 16-19.

Marlo collected data from students about whether they watched the latest Super Bowl game. The table below shows the results of Marlo's survey.

	Watched	Did Not Watch	TOTAL
Boys	80	20	100
Girls	40	60	100
Total	120	80	200

16. Of the students surveyed, how many watched the Super Bowl?

- A 40                      C 120  
B 80                      D 200

17. Of the students surveyed, how many girls did **not** watch the Super Bowl?

- A 20                      C 60  
B 40                      D 80

18. What is the relative frequency of students that watched the Super Bowl?

- A 20%                    C 40%  
B 30%                    D 60%

19. What is the relative frequency of boys among those that watched the Super Bowl?

- A 33.3%                C 75%  
B 66.7%                D 80%

20. The mass of Earth in kilograms is about  $6 \times 10^{24}$ , and the mass of the Moon is about  $7 \times 10^{22}$ . What is the sum of the masses of Earth and its Moon?

- A  $1 \times 10^2$               C  $6.07 \times 10^{24}$   
B  $7.06 \times 10^{23}$         D  $13 \times 10^{46}$

21. What value of  $x$  is the solution to the equation?

$$4(x - 1) = 2(x + 1)$$

- A -2                      C 1  
B 0                        D 3

22. What is the solution of the system of equations shown below?

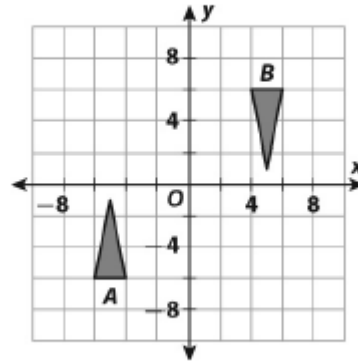
$$\begin{cases} y = 3x - 6 \\ y = 2x \end{cases}$$

- A (6, 12)                C (6, 8)  
B (12, 6)                D (6, 3)

23. The vertices of a triangle are located at the points  $A(1, 2)$ ,  $B(-2, 1)$  and  $C(1, 5)$ .  $A'B'C'$  is the image of  $ABC$  after a counterclockwise rotation of  $180^\circ$  about the origin. Which formula can be used to obtain the coordinates of the vertices of  $A'B'C'$ ?

- A  $(x, y) \rightarrow (-x, y)$   
B  $(x, y) \rightarrow (-x, -y)$   
C  $(x, y) \rightarrow (y, -x)$   
D  $(x, y) \rightarrow (-y, x)$

24. Ashton applied a sequence of transformations to obtain triangle  $B$  from triangle  $A$  as shown below.



Which of the following describes a sequence of transformations that could have been used?

- A a translation right followed by a translation up  
B a translation followed by a  $90^\circ$  counterclockwise rotation  
C a reflection across the  $x$ -axis followed by a reflection in the  $y$ -axis  
D a reflection across the  $y$ -axis followed by a dilation

25. The volume of a cone is 300 cubic centimeters. A cylinder has the same radius and height as the cone. What is the volume of the cylinder?

- A  $200 \text{ cm}^3$               C  $900 \text{ cm}^3$   
B  $400 \text{ cm}^3$               D  $2,700 \text{ cm}^3$

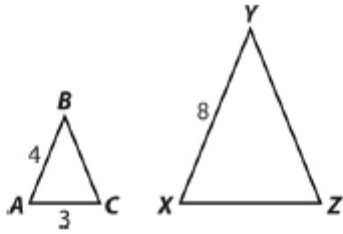
26. To the nearest tenth, what is the distance between the points  $(-3, 3)$  and  $(1, 2)$ ?

- A 2.2 units              C 5.4 units  
B 4.1 units              D 6.4 units

27. At a bookstore, the price of two notebooks plus a \$40 backpack is the same as the price of 10 notebooks. Which equation could be used to find the price of each notebook?

- A  $2x = 10x + 40$         C  $40 = 2x + 10x$   
B  $2x + 40 = 10x$         D  $2x - 40 = 10x$

28. Triangles  $ABC$  and  $XYZ$  below are similar. What is the length of  $\overline{XZ}$ ?

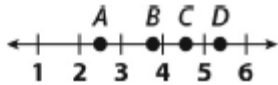


- A 1.5 units                      C 6 units  
 B 3 units                         D 7 units

29. A produce stand sells a basket of 12 apples for \$6. If the unit price of an apple is the same, what is the price for a basket of 18 apples?

- A \$2                                C \$18  
 B \$9                                D \$36

30. Which lettered point shows the position of  $\sqrt{20}$  on the number line below?



- A A                                      C C  
 B B                                      D D

31. -2 is an irrational number.

- a. True  
 b. False

32. 0 is a rational number.

- a. True  
 b. False

33.  $\frac{1}{3}$  is an irrational number.

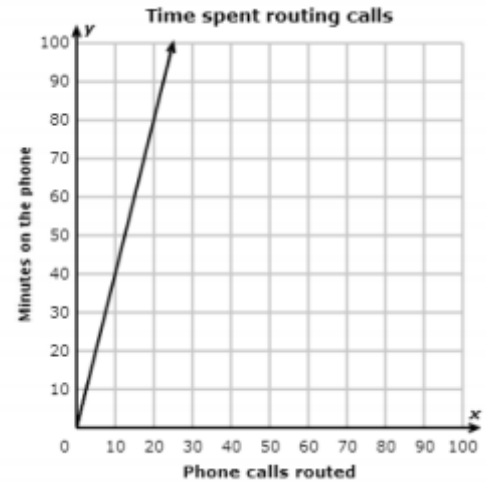
- a. True  
 b. False

34. Unit rate is the same as \_\_\_\_\_.

- A.) y-intercept  
 B.) vertical change  
 C.) slope  
 D.) horizontal change

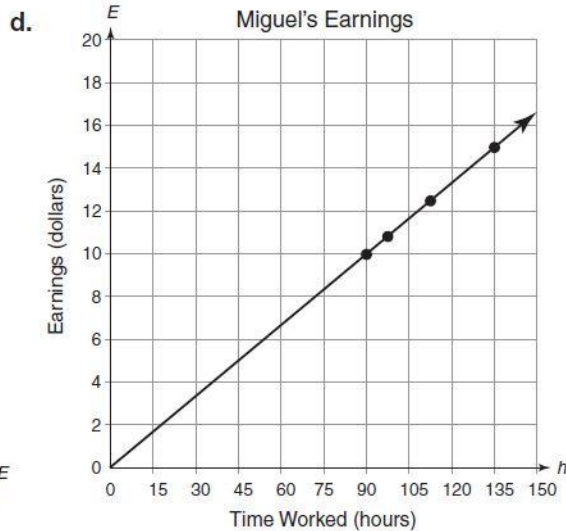
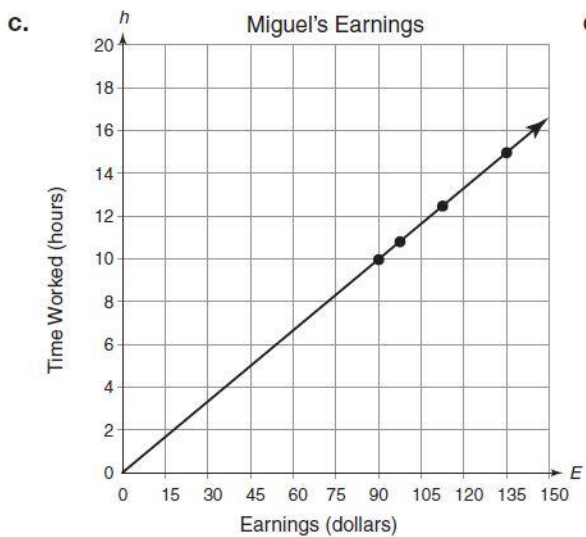
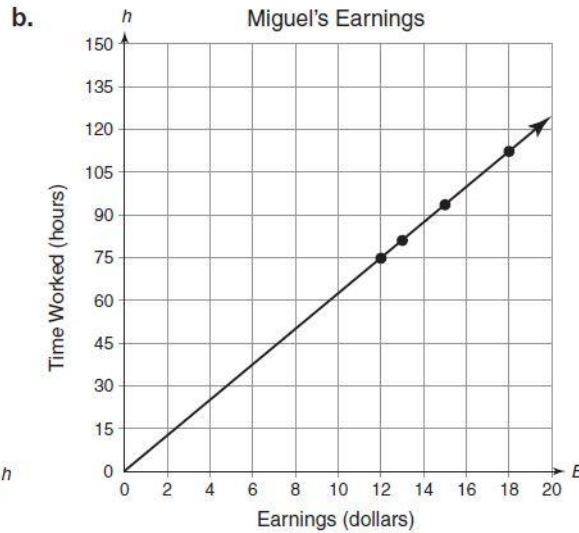
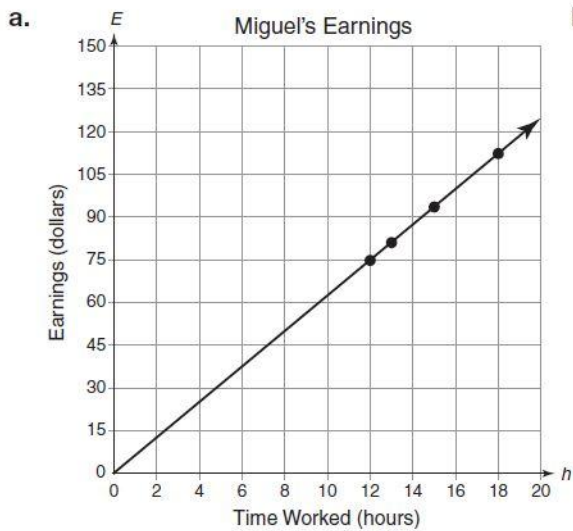
35. The unit rate of minutes per phone call is 0.25 min. per call.

- A.) True  
 B.) False



35. Miguel earns \$6.25 per hour that he works. The table shows his hours and earnings for each week in one month. Which graph correctly displays the relationship between hours worked and earnings?

Week	Time Worked	Earnings
	hours	dollars
Week 1	15	93.75
Week 2	18	112.50
Week 3	12	75
Week 4	13	81.25



36. Jerald created the following chart to track the amount of dog food his dog ate. Use his chart to answer this question.

Day Number (x)	Amount of Dog food left (y)
0	20
3	18
6	16

If Jerald starts out with 20 pounds of dog food, which equation represents how much dog food (y) will be left after any day (x)?

A.  $y = -\frac{1}{3}x + 10$

B.  $y = -\frac{2}{3}x + 10$

C.  $y = -\frac{1}{3}x + 20$

D.  $y = -\frac{2}{3}x + 20$

37. Which 3 measurements could be the dimensions of a right triangle?

$$(a^2 + b^2 = c^2)$$

A) 6 in, 8 in, 11 in

B) 9 in, 12 in, 15 in

C) 12 in, 24 in, 48 in

D) 5 in, 10 in, 15 in

38. The sides of triangle ABC measure 10, 12, and 15 centimeters. The sides of triangle DEF measure 12, 16, and 20 inches. What statement about the triangles is true?

A) Triangle DEF is a right triangle; triangle ABC is not.

B) Triangle ABC is a right triangle; triangle DEF is not.

C) Triangle ABC and triangle DEF are both right triangles.

D) Neither triangle ABC nor triangle DEF is a right triangle.