

A dark blue vertical bar runs down the left side of the page. A blue arrow-shaped banner points to the right from the bar, containing the text "Summer 2019".

Summer 2019

# Geometry

Ms. Maria Allen

- Please try to do all of the problems - you should be familiar with most, if not all, of them.
- Due the first full day of school, to be handed in neatly, in pencil
- Show your work!

# Summer Work – Geometry

# 2019

1. Jessica wrote the number  $8.06 \times 10^{-3}$  in standard form. Which number did she write?

- A 0.00806                      C 0.0806  
 B 0.0086                         D 8,060

2. Carlos wrote the number 52,700,000 in scientific notation. Which number did he write?

- A  $5.27 \times 10^{-7}$                  C  $5.27 \times 10^7$   
 B  $0.527 \times 10^6$                 D  $52.7 \times 10^7$

3. What is the slope of the line described by the data in the table below?

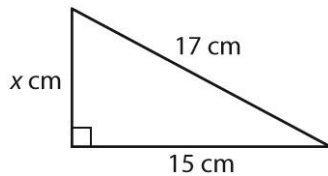
<b>x</b>	-3	0	3	6
<b>y</b>	3	7	11	15

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

4. Which of the following equations represents a direct proportional relationship?

- A  $y = 4x$                                 C  $y = \frac{8}{x}$   
 B  $y = \frac{1}{2}x - 1$                         D  $y = x + \frac{2}{5}$

5. What is the value of  $x$  in the diagram below?



- A 2                                         C 8  
 B 4                                         D 10

6. To the nearest tenth, what is the distance in units between the points  $(-2, 5)$  and  $(4, 1)$ ?

- A 4.5 units                                C 7.2 units  
 B 6.3 units                                D 8.5 units

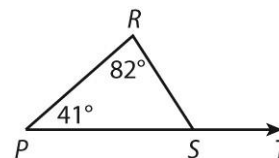
7. If  $f(x) = -4(x - 6) + 15$ , what is  $f(3)$ ?

- A -3                                        C 27  
 B 3                                         D 51

8. Which expression is equivalent to  $18x + 8y$ ?

- A  $6(3x + 2y) - 3y$   
 B  $9(2x + 2y) - 10$   
 C  $3(6x + 2y) + 2y$   
 D  $8(x + y) + 10y$

9. Which is the measure of  $\angle RST$  in the figure below?



- A  $41^\circ$                                       C  $107^\circ$   
 B  $57^\circ$                                       D  $123^\circ$

10. What are the  $x$ - and  $y$ -intercepts of  $6x - 4y = -36$ ?

- A  $x$ -intercept:  $-6$ ;  $y$ -intercept:  $9$   
 B  $x$ -intercept:  $6$ ;  $y$ -intercept:  $-9$   
 C  $x$ -intercept:  $9$ ;  $y$ -intercept:  $-6$   
 D  $x$ -intercept:  $-9$ ;  $y$ -intercept:  $6$

11. Which ordered pair does **not** lie on the graph of  $y = \frac{x}{4} + 5$ ?

- A  $(-8, 3)$                                 C  $(12, 8)$   
 B  $(-4, 6)$                                 D  $(20, 10)$

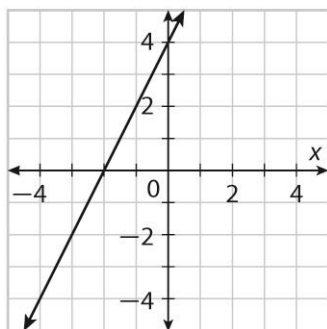
12. Which is the solution to  $6x + 7 = 3(2x - 3)$ ?

- A  $x = -2$   
 B  $x = 2$   
 C no solution  
 D  $x$  is all real numbers.

13. What is the value of  $x$  in the equation below?

$$x - 4 = \frac{1}{2}x + 5$$

- A 2    C 9  
 B  $4\frac{1}{2}$                                       D 18
14. Cheyenne's total pay varies directly with the number of hours she works. If she works 5 hours, she earns \$75. How much does Cheyenne earn if she works 8 hours?
- A \$90    C \$150  
 B \$120                                        D \$300
15. Which of the following is the equation of the line graphed below?

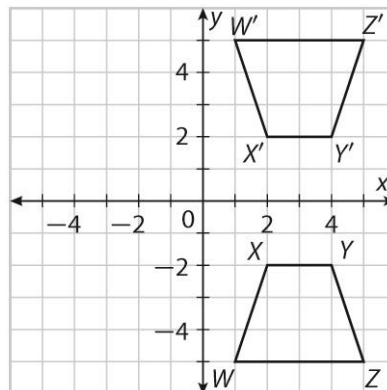


- A  $y = 2x - 2$                               C  $y = \frac{1}{2}x + 3$   
 B  $y = 2x + 4$                               D  $y = -\frac{1}{2}x + 4$
16. Which equation shows the relationship in the table below?

<b>x</b>	3	5	8	11
<b>y</b>	7	11	17	23

- A  $y = 2x$                                       C  $y = 2x + 1$   
 B  $y = x + 4$                                   D  $y = 2x + 4$

17. The vertices of a triangle are located at the points  $A(-2, -1)$ ,  $B(1, 3)$  and  $C(2, -4)$ . The triangle is translated 2 units right and 3 units up. What are the coordinates of the vertices of triangle  $A'B'C'$ ?
- A  $A'(0, 2)$ ,  $B'(3, 6)$ ,  $C'(4, -1)$   
 B  $A'(-4, 2)$ ,  $B'(-1, 6)$ ,  $C'(0, -1)$   
 C  $A'(0, -1)$ ,  $B'(3, 0)$ ,  $C'(4, -7)$   
 D  $A'(-4, -1)$ ,  $B'(-1, 0)$ ,  $C'(0, -7)$
18. The point  $(-4, -5)$  is rotated  $180^\circ$  counterclockwise about the origin. What are the coordinates of the resulting image?
- A  $(-4, 5)$                                       C  $(4, 5)$   
 B  $(-5, -4)$                                   D  $(5, 4)$
19. Which rule represents the transformation shown in the graph?



- A  $(x, y) \rightarrow (x, y + 2)$   
 B  $(x, y) \rightarrow (x + 4, y + 7)$   
 C  $(x, y) \rightarrow (-x, y)$   
 D  $(x, y) \rightarrow (x, -y)$
20. What is the product of  $2x - 9$  and  $2x + 9$ ?
- A  $2x^2 - 81$   
 B  $4x^2 - 81$   
 C  $4x^2 + 81$   
 D  $4x^2 - 18x + 81$



29. A diagonal sidewalk across a rectangular courtyard is 130 feet. The courtyard is 50 feet long. What is the other dimension of the lot?

- A 30 ft
- B 60 ft
- C 120 ft
- D 150 ft

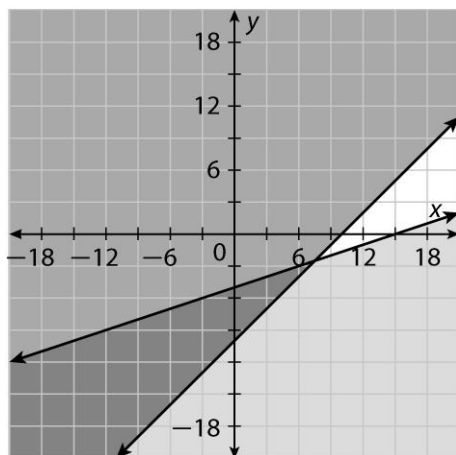
30. The volume of a cone is 258.9 cubic centimeters. A cylinder has the same base and height as the cone. What is the volume in cubic centimeters of the cylinder?

- A 86.3 cm<sup>3</sup>
- B 279 cm<sup>3</sup>
- C 517.8 cm<sup>3</sup>
- D 776.7 cm<sup>3</sup>

31. Marcus drew a rectangle with a perimeter of 30 inches. He then performed a dilation with a scale factor of 3. What is the perimeter in units of the resulting image?

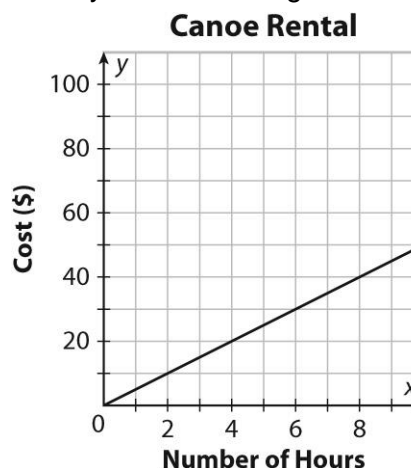
- A 10 in.
- B 15 in.
- C 60 in.
- D 90 in.

32. Which ordered pair is part of the solution set of the system of inequalities graphed below?



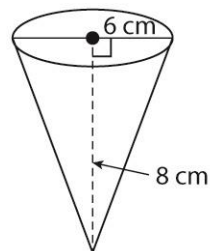
- A (-8, -6)
- B (-4, -10)
- C (-4, -15)
- D (12, 0)

33. The graph shows the cost of renting a canoe, which is an hourly rate. What is the hourly rate for renting a canoe?



- A \$5 per hour
- B \$10 per hour
- C \$15 per hour
- D \$20 per hour

34. A paper cup has the dimension shown in the diagram. What is the volume of the cup to the nearest tenth? Use 3.14 for  $\pi$ .

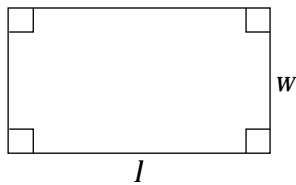


- A 75.4 cm<sup>3</sup>
- B 226.1 cm<sup>3</sup>
- C 301.4 cm<sup>3</sup>
- D 904.3 cm<sup>3</sup>

35. A cylindrical tank can hold 78.5 cubic meters of water. The tank has a base radius of 2.5 meters. What is the height of the tank? Use 3.14 for  $\pi$ .

- A 4 m
- B 10 m
- C 31.4 m
- D 196.3 m

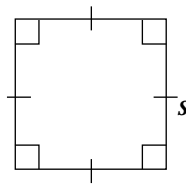
# Formulas for Perimeter, Area, and Volume



$$P = 2l + 2w$$

$$A = lw$$

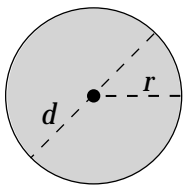
Rectangle



$$P = 4s$$

$$A = s^2$$

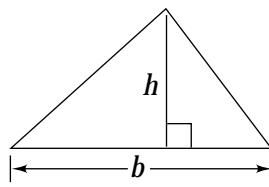
Square



$$C = 2\pi r \text{ or } C = \pi d$$

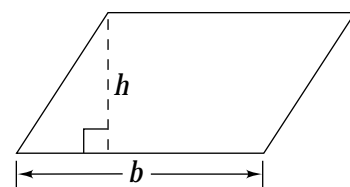
$$A = \pi r^2$$

Circle



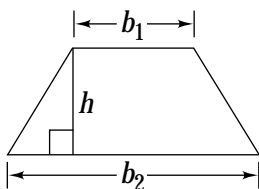
$$A = \frac{1}{2}bh$$

Triangle



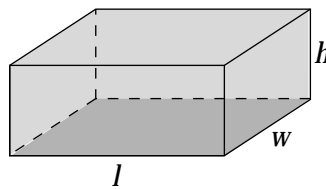
$$A = bh$$

Parallelogram



$$A = \frac{1}{2}(b_1 + b_2)h$$

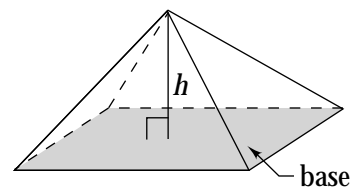
Trapezoid



$$V = Bh$$

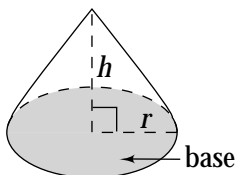
$$V = lwh$$

Rectangular Prism



$$V = \frac{1}{3}Bh$$

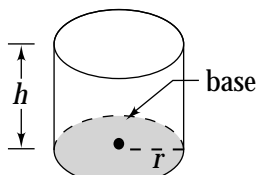
Pyramid



$$V = \frac{1}{3}Bh$$

$$V = \frac{1}{3}\pi r^2 h$$

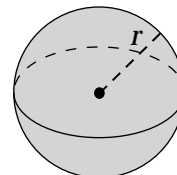
Cone



$$V = Bh$$

$$V = \pi r^2 h$$

Cylinder



$$V = \frac{4}{3}\pi r^3$$

Sphere