



ANDREW JACKSON HIGH SCHOOL

School for Advanced Technology

Summer 2019 Geometry Packet

This packet is designed to assess your foundational understanding of math terms and strategies that will be necessary to be successful in Geometry.

Show all necessary work and attempt every problem. Answers with no work will receive no credit.

Packets are due on Friday, August 16th

Solve the equations for the variable.

$$18 = 6(2x - 8)$$

$$22x + 11 = 4x - 7$$

$$8 + 3b = -13$$

$$\frac{y - 6}{2} = \frac{-3}{y - 1}$$

$$\frac{x - 3}{4} = 12$$

$$\frac{x + 5}{x - 8} = \frac{1}{3x}$$

$$14 + 3n = 8n - 3(n - 4)$$

$$\frac{7}{10} = \frac{9 + x}{x}$$

1. During summer vacation, you charge people \$8 per hour for swimming lessons and a \$20 registration fee. If you make \$52 one day, how many hours did you spend teaching lessons?
2. Alex sells cars at Keith Palmer Ford. He earns \$400 a week plus \$150 per car he sells. If he earned \$1450 last week, how many cars did he sell?

3. From the following equations, find the slope and y-intercept

$$y = -3x + 2$$

$$3x + 2y = 14$$

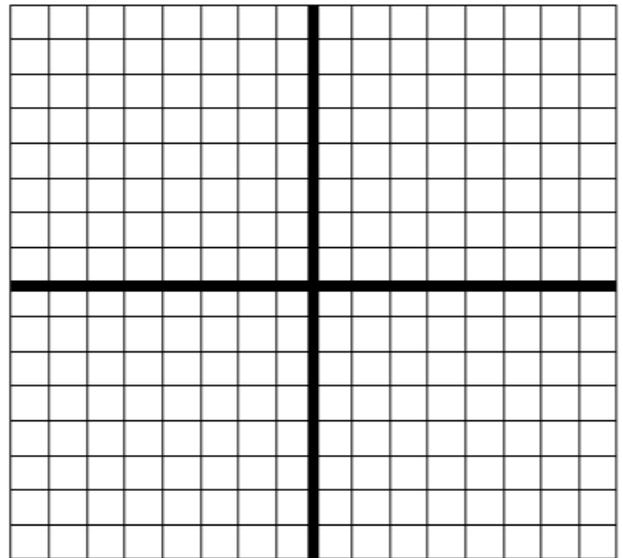
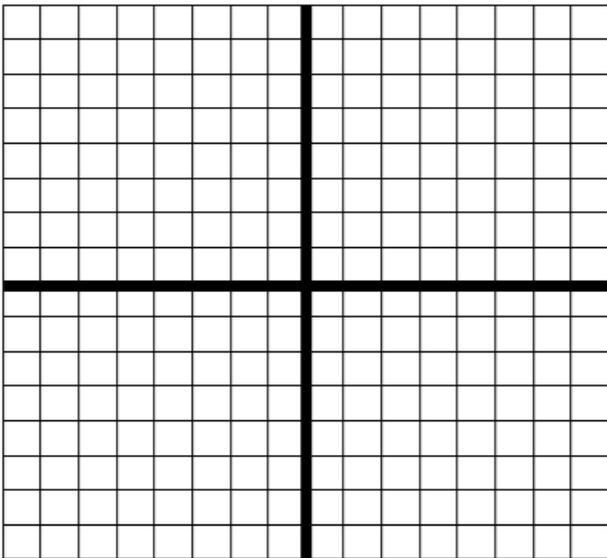
$$\frac{1}{3}y - 6x = 4$$

$$y = 2\left(-\frac{2}{3}x - 4\right)$$

4. Sketch the lines on the graphs below

$$y = -3x + 1$$

$$y = \frac{1}{4}x - 2$$



5. In 1990, the population of South Carolina was approximately 3,500,000. During the next ten years, the population increased by approximately 38,500 people per year. Write a linear model (equation) that gives the population, P , of South Carolina in terms of the year, Y . Let $Y = 0$ correspond to 1990.

6. You are buying \$24 worth of peanuts and cashews for a party. The peanuts cost \$3 per pound, and the cashews cost \$4 per pound. Write an equation for the different amounts of peanuts and cashews that you can buy.

7. You plan on landscaping your yard. You decide to use two types of mulch: Sierra red and plain brown. Sierra red costs \$7 per bag and the plain brown costs \$4 per bag. You purchase 15 bags of mulch which costs \$84. How many bags of each type did you purchase?

8. Find the length & width of a rectangle if its length is twice as much as its width, and its perimeter is 48 inches.

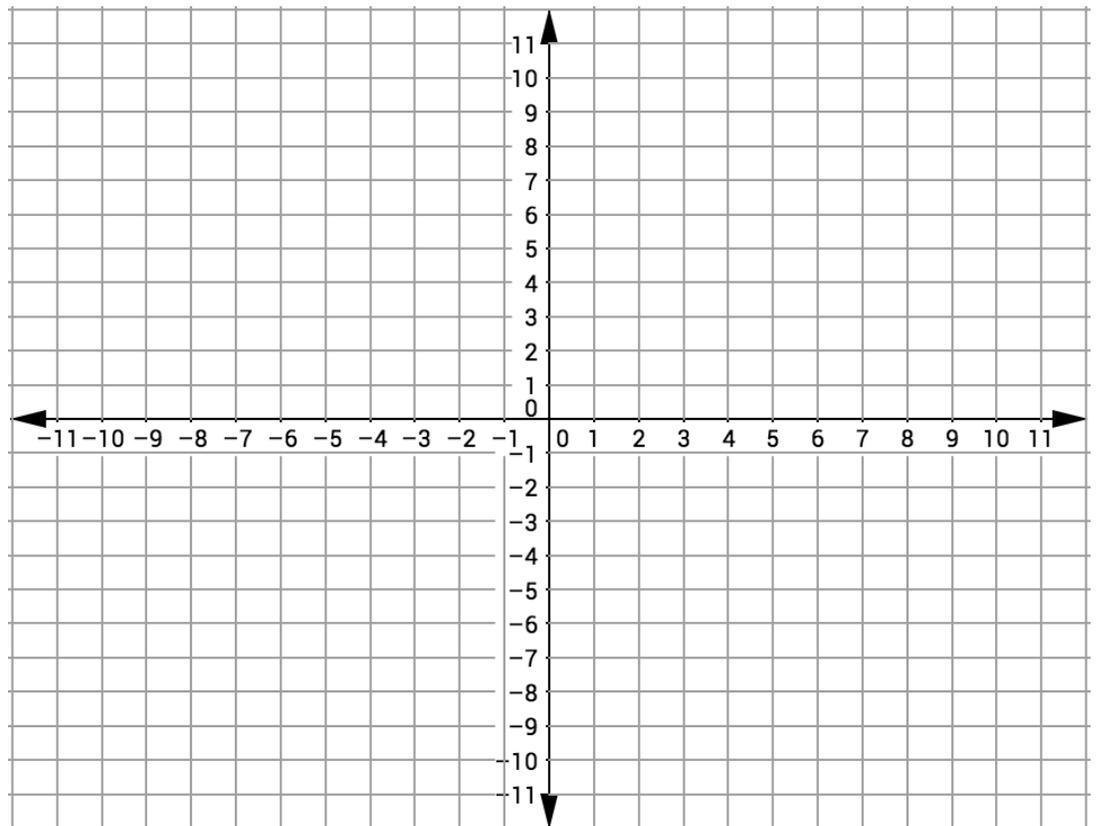
9. The length of a rectangular garden is 3 times its width. If the perimeter of the garden is 40 yards, what is its area?

10. Fred lives in Pennsylvania and his grandmother lives in Ohio. When driving to visit her, Fred's average speed in Pennsylvania is 55 mph. When he is in Ohio, his average speed is 65 mph. It takes Fred 5 hours to complete the 295-mile trip (one-way). How long does he drive in each state?

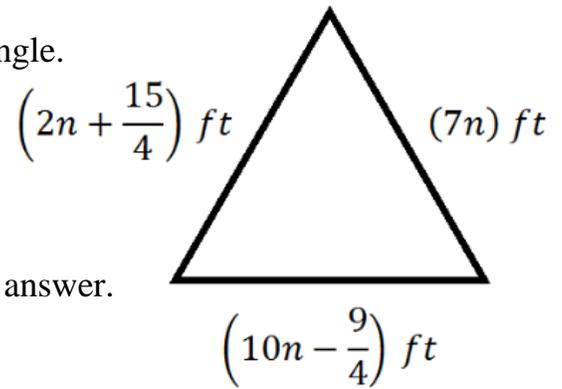
11. \overline{AB} has coordinates $A(-5, 9)$ and $B(7, -7)$. Points P , Q , and T are collinear points in \overline{AB} with coordinates $P(-2, 5)$, $Q(1, 1)$, and $T(4, -3)$.

Which of the following line segments would partition \overline{AB} into a ratio of 3:2?

- A \overline{AP}
- B \overline{PQ}
- C \overline{QT}
- D \overline{TB}

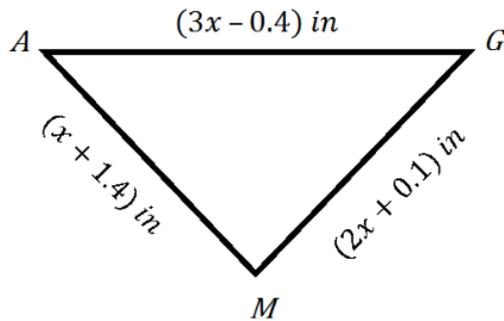


11. Consider the diagram of an equilateral triangle.

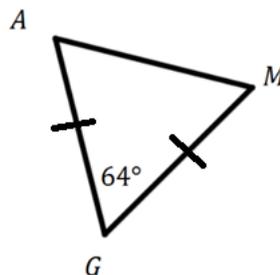
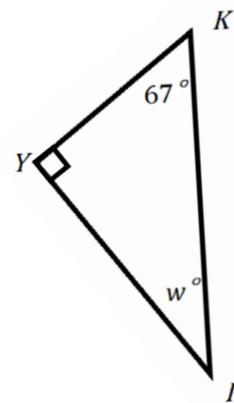
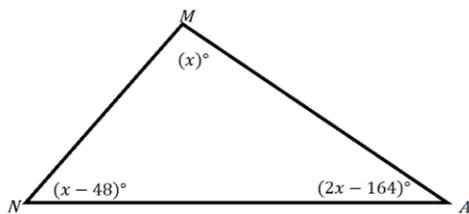


How long is each side of the triangle? Justify your answer.

12. If $\triangle AMG$ is an isosceles triangle with base AG , what is the value of x ? What is the length of each leg? What is the length of the base? Justify your answer.



13. Find the measure of all angles in each of the triangles below:



14. Alejandro has three ladders that are 15, 10, and 12 feet in length. If he is trying to reach a window that is 8 feet from the ground, then how far from the base of the building will each of the ladders need to be?

15. The walls of square storage room in a warehouse are 300 feet long. What is the distance from one corner to the other corner of the storage room?

16. If $EG = 59$ what is the value of x ?



17. If $JL = 120$ what is the measure of JK and KL ?

