

DUE: August 9, 2021

This assignment is for students who have will be entering Hannan as 8th graders and are scheduled to take Pre-Algebra (Algebra 8) in the 2021-2022 school year.

Did you read the instructions? _____

What math are you taking in the 2021-2022 school year? _____

The expectation of the Math Department at Archbishop Hannan High School is that its students become Tenacious Problem Solvers! Thus, as you work on these problems be sure and document your strategies, your mathematical explanations, any drawings, tables or graphs that you use, and the best, complete answer you can find. We hope that you are challenged by these problems and enjoy them. We look forward to the discussion of these problems that we will have in the first weeks of school. Come prepared to defend your solution!

1. Assuming that light travels 186,000 miles per second and the sun is 93 million miles from the Earth, how much time does light take to reach the earth?

2. How long would it take to count to a million?

3. How long would it take to drive to the moon?

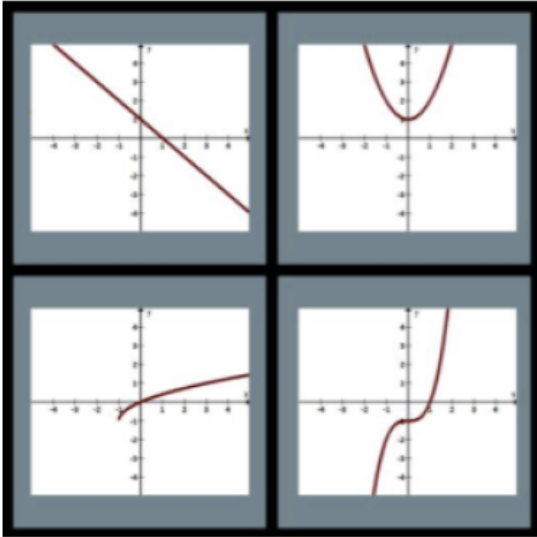
4. Without using a calculator, which is bigger? How can you tell without doing any work?

a. $\frac{2}{35}$ or $\frac{2}{29}$

b. $\frac{33}{34}$ or $\frac{41}{42}$

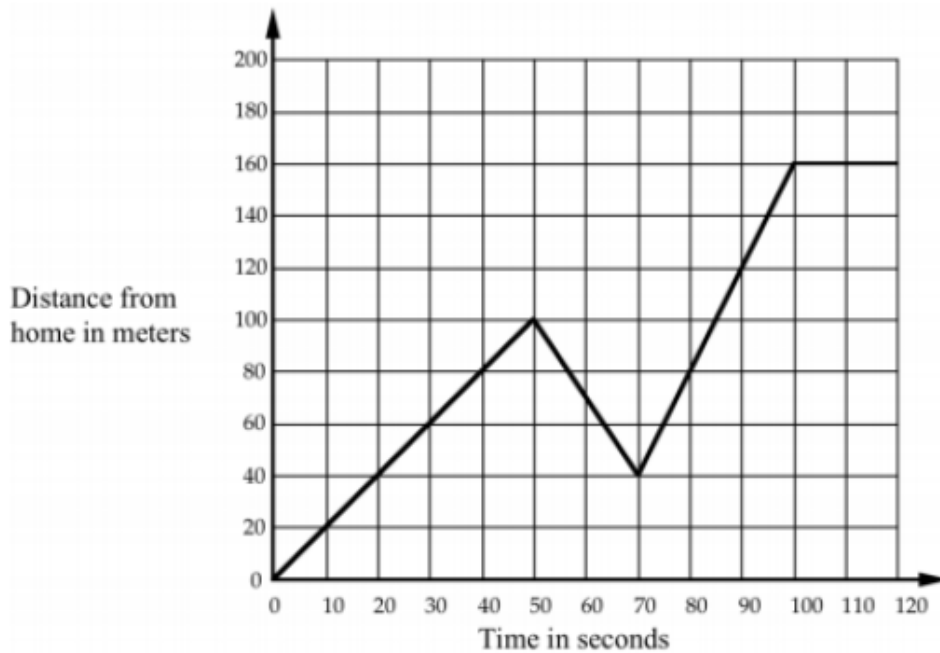
c. $\frac{51}{100}$ or $\frac{39}{80}$

5. Give three reasons why the upper left quadrant is different than the other three.



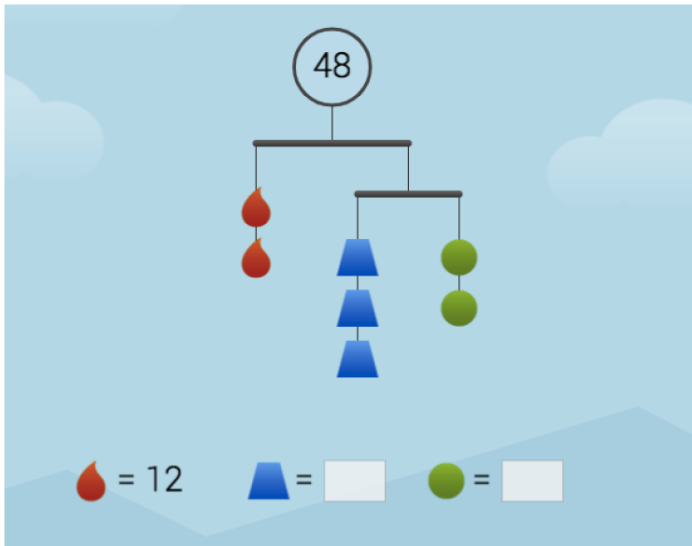
6. Describe what may have happened in this graph. Include details such as how fast Tom walked.

Every morning Tom walks along a straight road from his home to a bus stop, a distance of 160 meters. The graph shows his journey on one particular day.

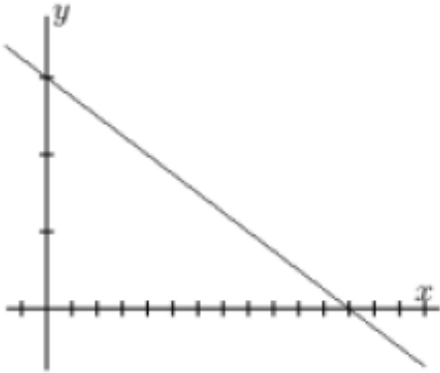


7. How far apart on a number line are a) 12 and 18; b) 12 and -7; (c) -11 and -4

8. What are the values of the trapezoid and the circle? Explain how you determined this.



9. Invent a story that can be described by the graph below.



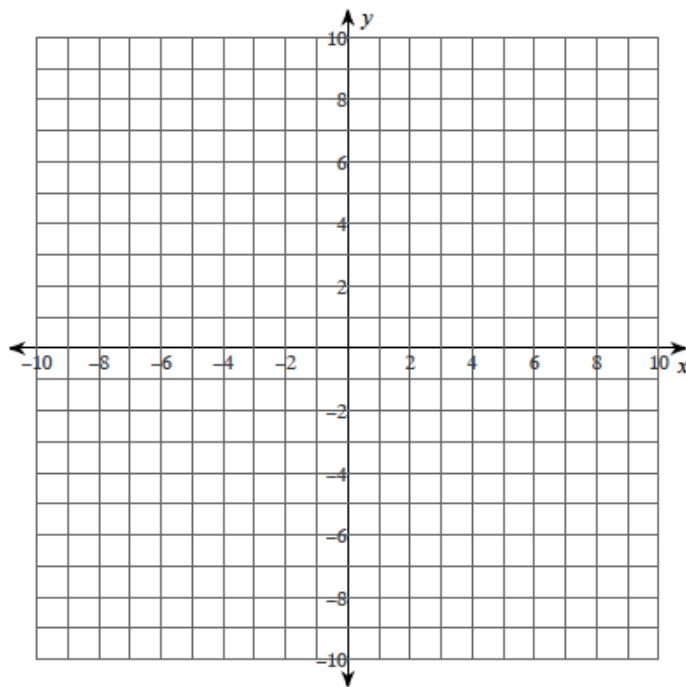
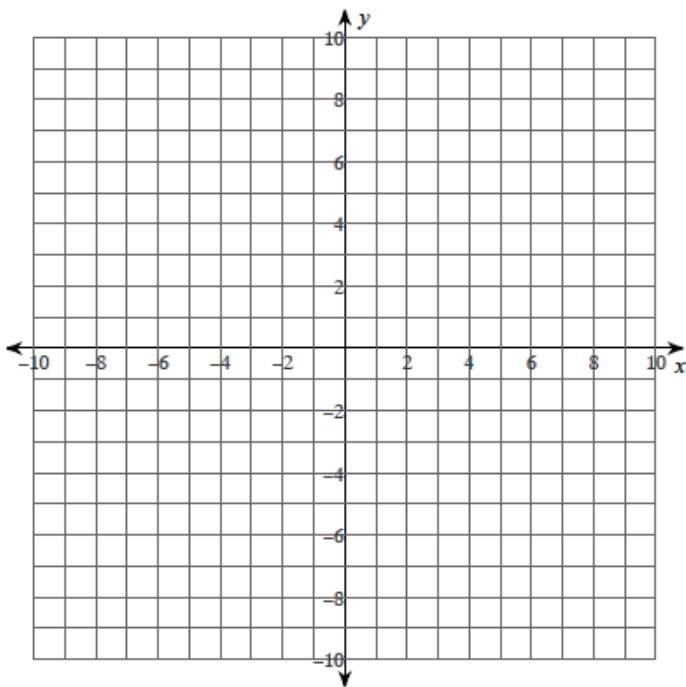
Essential Skills

The following problems represent the essential skills you need to be successful in Pre-Algebra.

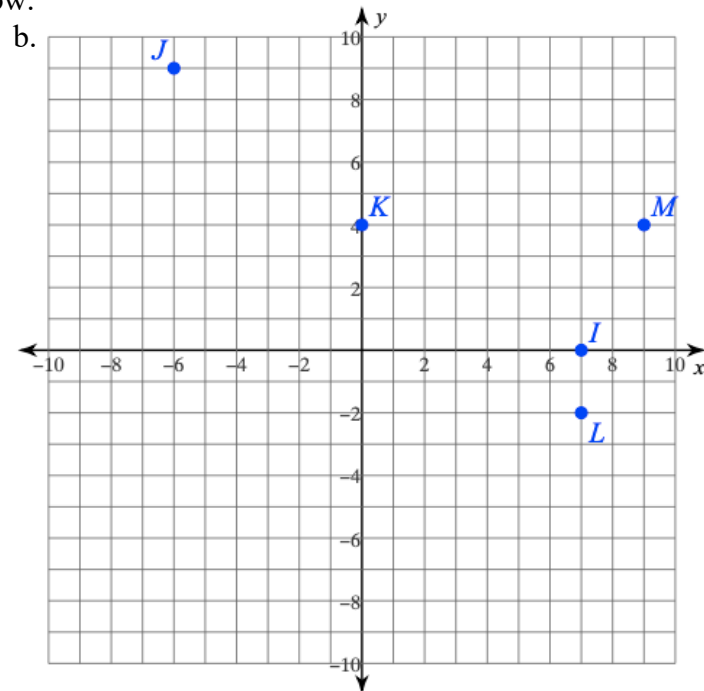
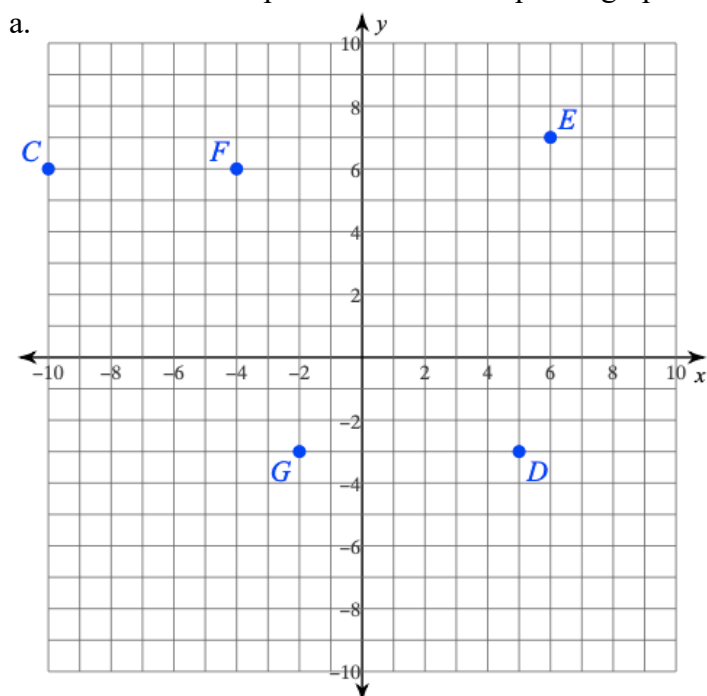
1. Plot the points on the graph below. Label each point with the letter.

a. $F(10, 4)$ $E(1, -1)$ $D(-9, 10)$
 $C(1, -2)$ $B(10, 9)$

b. $H(0, -6)$ $I(2, 5)$ $J(10, -6)$
 $K(6, 5)$ $L(-6, -3)$



2. Give the ordered pair for each of the points graphed below.



C: _____ D: _____ E: _____

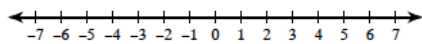
J: _____ K: _____ L: _____

F: _____ G: _____

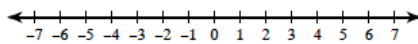
M: _____ N: _____

3. Draw a graph for each inequality.

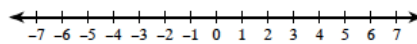
a. $x \geq 3$



b. $x < -2$



c. $x \leq 6$



4. Evaluate each expression. NO CALCULATOR.

a. $-15 + 3$

b. $-11 - -46$

c. $11 - -15$

d. $-1 + 22$

e. $-12 + -6$

f. $\frac{2}{3} - \frac{1}{5}$

g. $\frac{6}{7} + 2$

h. $\frac{4}{3} \cdot \frac{7}{10}$

i. $\frac{1}{2} \div \frac{11}{8}$

j. $-\frac{1}{3} - 1\frac{3}{4}$

k. $\left(1\frac{2}{7}\right) \cdot \left(3\frac{3}{4}\right)$

l. $\frac{9}{5} \div 5$

5. Evaluate each expression. NO CALCULATOR.

a. $12 \div (5 - 1)$

b. $(10 \times 2) \div 4$

c. $-9 + 7 - (-10 - 3)$

d. $3^2 + 5 \cdot 2$

e. $\frac{3 - 6 \div 2}{10 + 9 \times 4}$

f. $15 + 3(6 - 2 \cdot 3)$

6. Solve the equation.

a. $x + 4 = 9$

b. $x - 3 = -5$

c. $2x = 28$

d. $5 = \frac{x}{7}$

e. $-3 + x = 14$

f. $7 - x = -10$

g. $2x - 3 = 15$

h. $5x - 10 = -10$

i. $\frac{x}{5} = \frac{3}{2}$

j. $\frac{x}{3} = \frac{8}{6}$

k. $\frac{17}{x} = 2$

l. $3 = \frac{x - 4}{2}$

7. Solve the percent problems.

a. What is 40% of 98?

b. What is 115% of 92?

c. 78 is what percent of 82?

d. What percent of 112 is 7?

8. Coffee beans lose 12.5% of their weight during roasting. In order to obtain 252 kilograms(kg) of roasted coffee beans, how many kg of unroasted beans must be used?