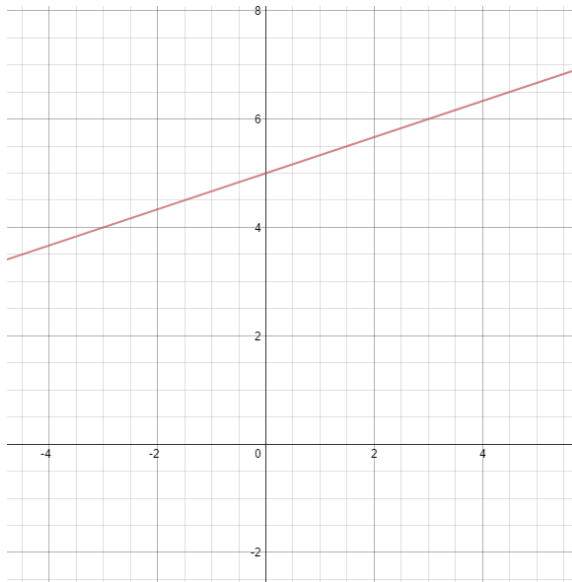


1. You graph the equation $y = \frac{1}{3}x - 4$. Draw the graph if you change the -4 in the equation to a 5.
2. What is the x -intercept of the line with the equation $5x + 2y = 25$
3. Graph the equation $4x - 7y = 28$ by finding the x - and y -intercepts.
4. Write an equation in slope-intercept form of a line that passes through the point (3,3) and is perpendicular to $y = -\frac{3}{2}x + 6$
5. Find the slope of the line that passes through the points A (5,-7) and B (-3,-1)
6. Find the slope of the line that contains the points (3,9) and (3, -4)
7. Draw a graph of the following situation:
 - a. A car initially travelling at 23 mi/hr accelerates to 45 mi/h in 5 seconds. It maintains that speed for the next 5 seconds, and then slows to a stop during the next five seconds. (HINT: seconds is the x axis and speed is the y axis)
8. Which point $(\frac{5}{2}, 3)$ or $(\frac{3}{2}, 2)$ is on the graph of $2x - \frac{2}{3}y = \frac{5}{3}$?
9. Sketch the graphs of $x = 5$ and $y = 4$. Then, find the point at which the two graphs intersect.
10. Write an equation of the line that passes through the two given points $(-1, -8)$, $(4, -6)$. Give the equation in Slope-Intercept Form, Point-Slope Form, AND standard form.
11. Mr. Fretheim collects yard waste from his neighborhood in his truck. When he puts 300 pounds in the back, the rear bumper was 13.25 inches from the ground. On the way home from the composting facility, he stopped at Konkrete Industries to buy gravel. With 1200 pounds of gravel in the back, the rear bumper was 11 inches off the ground. Assume the distance the bumper is off the ground and the number of pounds in the cab of the truck are related linearly.
 - a. Define the variables
 - b. What kind of correlation do the variables have? Explain how you know.
 - c. Write an equation to model the situation.
 - d. How far off the ground would the rear bumper be if there was a 100 pound ladder rack on the back of the pickup. Give your answer in a sentence.
 - e. How many pounds are on the truck if it is 12.5" off the ground? Give your answer in a sentence.
 - f. Find the y -intercept. What does this number represent in this situation?
 - g. Find the x -intercept. What does this number represent in this situation?

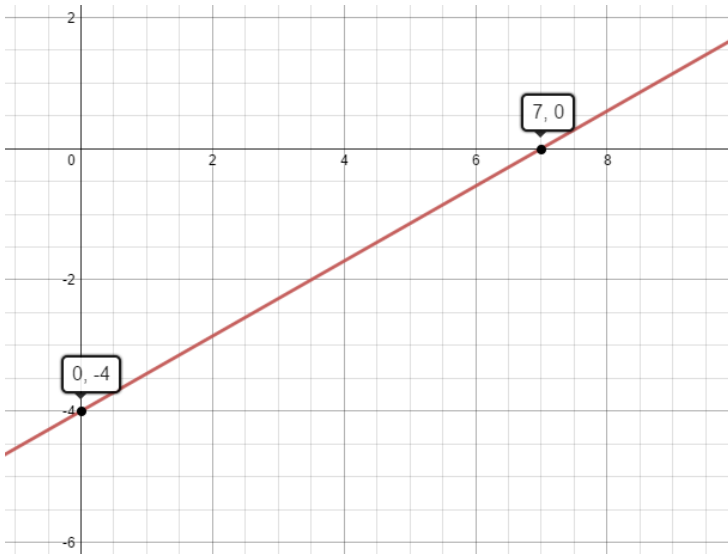
Answers:

1.



2. $x = 5$ (the x-intercept is when $y=0$)

3.

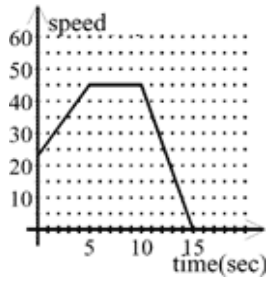


4. $y = \frac{2}{3}x + 1$

5. $\frac{-7+1}{5+3} = \frac{-6}{8} = \frac{-3}{4}$

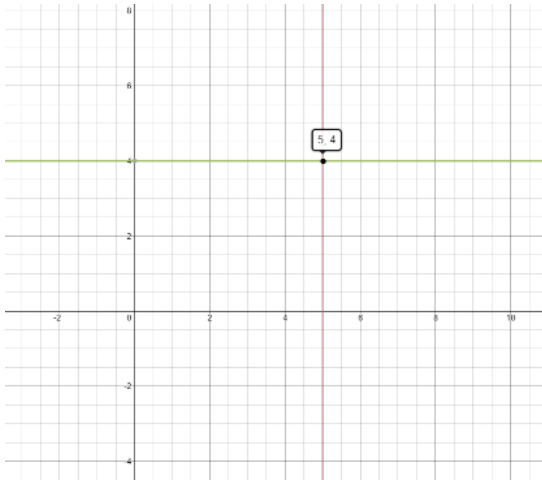
6. $\frac{9+4}{3-3} = \frac{13}{0} = \text{undefined}$

7.



8. $(\frac{3}{2}, 2)$

9.



10. $y + 8 = \frac{2}{5}(x + 1)$ or $y - 6 = \frac{2}{5}(x - 4) \rightarrow$ Point-Slope Form (written first after finding slope)

$y = \frac{2}{5}x - \frac{38}{5} \rightarrow$ Slope-Intercept Form (written second after rearranging point-slope)

$2x - 5y = 38 \rightarrow$ Standard Form (written third after rearranging slope-intercept form)

11. (300,13.25)(1200,11)

a. X = # pounds on the back of the cab, y = distance the bumper is off the ground

b. Negative correlation. The more pounds on the truck, the shorter the distance the bumper is from the ground

c. $m = \frac{13.25-11}{300-1200} = \frac{2.25}{-900} = -.0025$ or $-\frac{1}{400}$

$$y - 13.25 = -\frac{1}{400}(x - 300) \text{ or } y - 11 = -\frac{1}{400}(x - 1200)$$

d. $y - 13.25 = -\frac{1}{400}(x - 300)$

$$y - 13.25 = -\frac{1}{400}(100 - 300)$$

$$y - 13.25 = -\frac{1}{400}(-200)$$

$$y - 13.25 = \frac{1}{2}$$

$$y = 13.75$$

If there is a 100 pound ladder on the truck, the bumper will be 13.75" off the ground

e. $y - 13.25 = -\frac{1}{400}(x - 300)$

$$12.5 - 13.25 = -\frac{1}{400}(x - 300)$$

$$-.75 = -\frac{1}{400}x + \frac{3}{4}$$

$$-1.5 = -\frac{1}{400}x$$

$$600 = x$$

If the bumper is 12.5" off the ground, there is 600 lbs on the back of the truck.

f. Y -intercept is 14. This means how far the bumper is off the ground if there is 0 lbs on the back of the truck.

g. X -intercept is 5600. This means how many pounds are on the truck for there to be 0" between the bumper and the ground.