

1. Find the rate of change & explain what it means.

Bike Riding Distance

Time (minutes)	Distance Traveled (ft)
1	1120
2	2240
3	3360
4	4480

+1
+1
+1

+1120
+1120
+1120

$$\frac{1120}{1} = 1120 \text{ ft per min}$$

The bike rider is going 1120 fpm.

2. Find the slope of the line that passes through the given points.

(3, -20) & (5, 8)

$$\frac{8 - (-20)}{5 - 3} = \frac{28}{2} = 14$$

$$m = 14$$

3. Find the slope of the line that passes through the given points.

(9, 3) & (19, -17)

$$\frac{-17 - 3}{19 - 9} = \frac{-20}{10} = -2$$

$$m = -2$$

4. Find the slope of the line that passes through the given points.

$$(12, -18) \text{ \& } (-15, -18)$$

$$\frac{-18 - -18}{-15 - 12} = \frac{0}{-27} = 0$$

$$m = 0$$

5. Find the slope of the line that passes through the given points.

$$(13, 2) \text{ \& } (1, 5)$$

$$\frac{5 - 2}{1 - 13} = \frac{3}{-12} = -\frac{1}{4}$$

$$m = -\frac{1}{4}$$

6. Tell whether the equation is direct variation. If it is, find the constant of variation.

$$y = \frac{2}{3}x$$

$$\text{yes! } k = \frac{2}{3}$$

7. Tell whether the equation is direct variation.
If it is, find the constant of variation.

$$4x + 2 = 12y + 2$$

$$\frac{4x}{4} = \frac{12y}{4}$$

$$\frac{1}{3}x = y$$

$$y = \frac{1}{3}x$$

yes! $k = \frac{1}{3}$

8. Tell whether the equation is direct variation.
If it is, find the constant of variation.

$$6y + 7 = 2x + 4$$

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

$$y = \frac{1}{3}x - \frac{1}{2} \quad \text{No!}$$

9. Find the slope & y-intercept of the graph of the equation.

$$y = -\frac{2}{7}x + 9$$

$$m = -\frac{2}{7} \quad b = 9$$

10. Find the slope & y-intercept of the graph of the equation.

$$6x + 7y = 13$$

$$7y = -6x + 13$$

$$y = -\frac{6}{7}x + \frac{13}{7}$$

$$m = -\frac{6}{7} \quad b = \frac{13}{7}$$

11. Find the slope & y-intercept of the graph of the equation.

$$\frac{3y}{3} = \frac{-9x}{3} - \frac{12}{3}$$

$$y = -3x - 4$$

$$m = -3 \quad b = -4$$

12. Heather's weekly pay is directly proportional to the number of hours she works at the record store. Her pay is \$174 for 24 hours of work. Find the amount of pay for 40 hours of work.

$$y = kx$$

$$\frac{174}{24} = \frac{k \cdot 24}{24}$$

$$k = 7.25$$

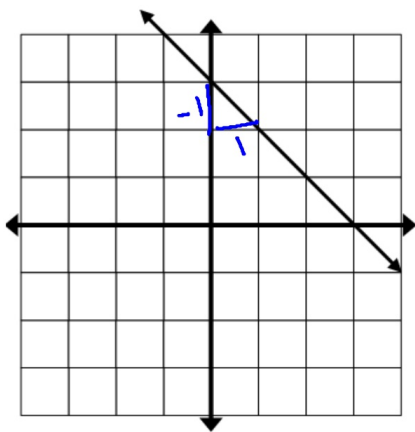
$$y = 7.25x$$

$$y = 7.25(40)$$

$$y = 290$$

\$290

13. Write an equation in slope-intercept form for the line.

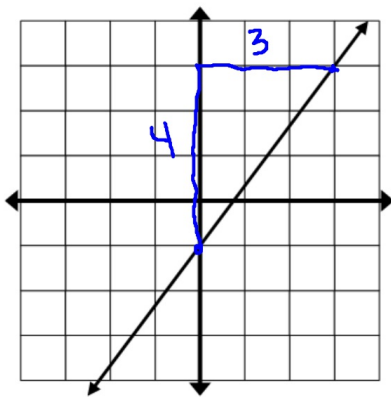


$$m = \frac{-1}{1} = -1$$

$$b = 3$$

$$y = -x + 3$$

14. Write an equation in slope-intercept form for the line.

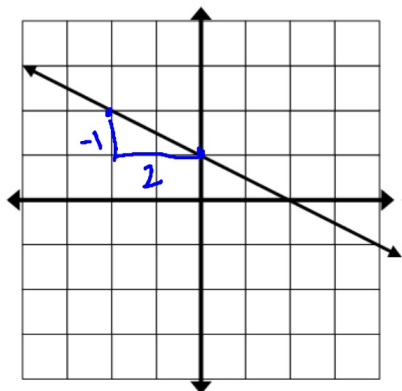


$$m = \frac{4}{3}$$

$$b = -1$$

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

15. Write an equation in slope-intercept form for the line.



$$m = -\frac{1}{2}$$

$$b = 1$$

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

16. Write an equation in slope-intercept form for the line through the given point with the given slope.

$$(1, 1) \quad m = 4$$

$$y = mx + b$$

$$1 = 4(1) + b$$

$$1 = 4 + b$$

$$-4 \quad -4$$

$$-3 = b$$

$$y = 4x - 3$$

17. Write an equation in slope-intercept form for the line through the given point with the given slope.

$$(3, 2) \quad m = -\frac{2}{3}$$

$$y = mx + b$$

$$2 = -\frac{2}{3}(3) + b$$

$$2 = -2 + b$$

$$+2 \quad +2$$

$$4 = b$$

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

18. Write an equation in slope-intercept form for the line through the given points.

$$(2, 8) \text{ and } (1, 3)$$

$$m = \frac{3-8}{1-2} = \frac{-5}{-1} = 5$$

$$y = mx + b$$

$$8 = 5(2) + b$$

$$-10 \quad -10$$

$$-2 = b$$

$$y = 5x - 2$$

19. Write an equation in slope-intercept form for the line through the given points.

$(9, -1)$ and $(-3, 7)$

$$m = \frac{7 - (-1)}{-3 - 9} = \frac{8}{-12} = -\frac{2}{3}$$

$$y = mx + b$$

$$7 = -\frac{2}{3}(-3) + b$$

$$7 = 2 + b$$

$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$b = 5$$

$$y = -\frac{2}{3}x + 5$$

20. Write an equation in slope-intercept form for the line through the given points.

$(-7, -4)$ and $(-5, -6)$

$$m = \frac{-6 - (-4)}{-5 - (-7)} = \frac{-2}{2} = -1$$

$$y = mx + b$$

$$-4 = -1(-7) + b$$

$$-4 = 7 + b$$

$$\begin{array}{r} -7 \\ -7 \end{array}$$

$$b = -11$$

$$y = -x - 11$$

21. Write an equation in slope-intercept form for the line through the given points.

$(7, -3)$ and $(6, -8)$

$$\frac{-8 - (-3)}{6 - 7} = \frac{-5}{-1} = 5$$

$$y = mx + b$$

$$-3 = 5(7) + b$$

$$-3 = 35 + b$$

$$\begin{array}{r} -35 \\ -35 \end{array}$$

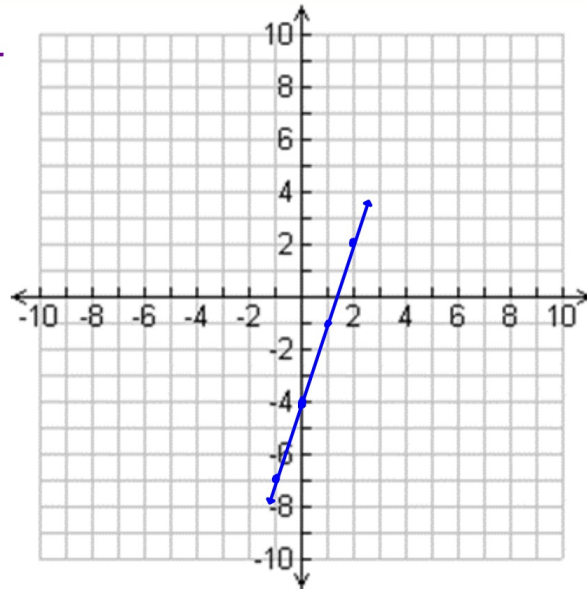
$$b = -38$$

$$y = 5x - 38$$

22. Graph the equation.

$$y = 3x - 4$$

$$m = \frac{3}{1}$$
$$b = -4$$

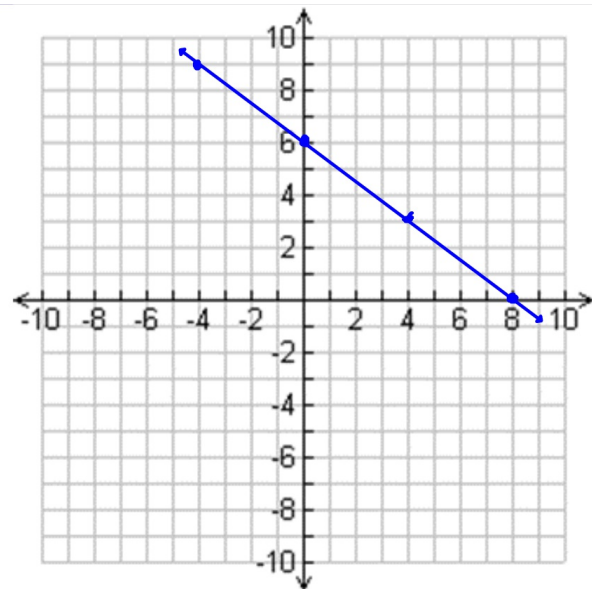


23. Graph the equation.

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

$$m = -\frac{3}{4}$$

$$b = 6$$

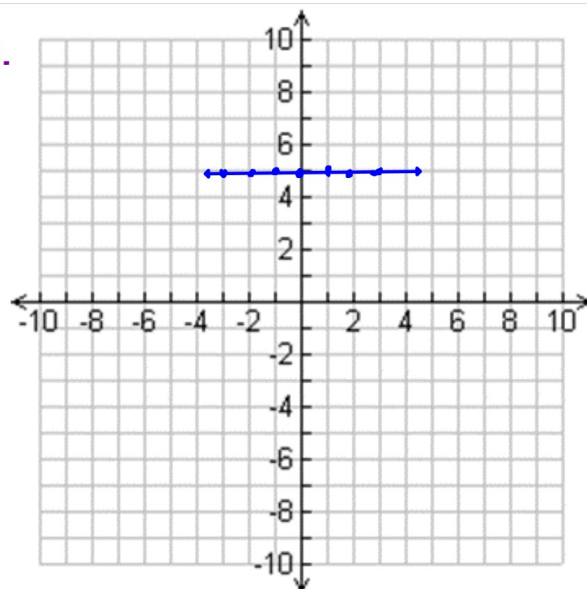


24. Graph the equation.

$$y = 5$$

$$m = 0$$

$$b = 5$$



25. Graph the equation.

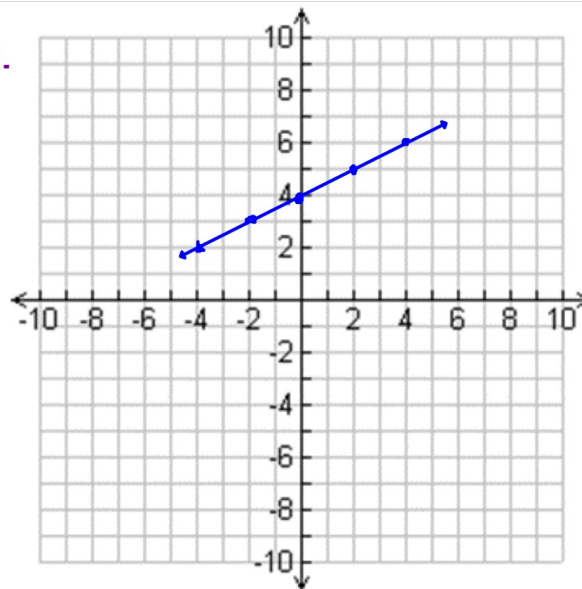
$$y - 6 = \frac{1}{2}(x - 4)$$

$$\begin{array}{r} y - 6 = \frac{1}{2}x - 2 \\ + 6 \quad + 6 \end{array}$$

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

$$m = \frac{1}{2}$$

$$b = 4$$



26. Graph the equation.

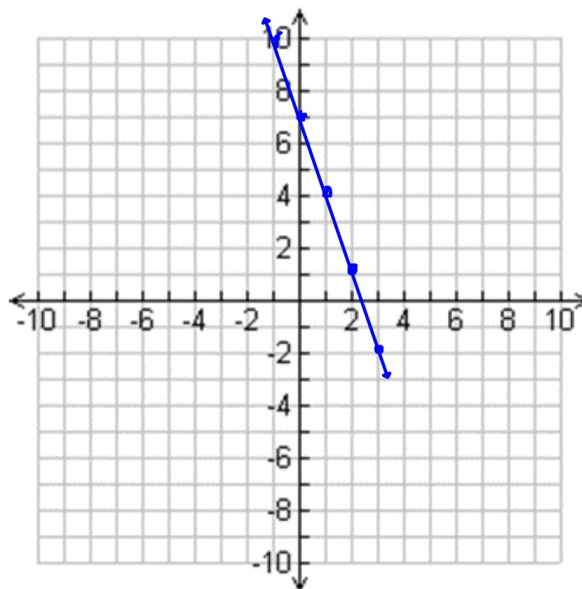
$$y + 2 = -3(x - 3)$$

$$\begin{array}{r} y + 2 = -3x + 9 \\ -2 \quad -2 \end{array}$$

$$y = -3x + 7$$

$$m = \frac{-3}{1}$$

$$b = 7$$



27. Graph the equation.

$$8x + 4y = 16$$

$$\begin{array}{r} -8x \quad -8x \end{array}$$

$$\begin{array}{r} 4y = -8x + 16 \\ + \quad + \quad + \\ \frac{4y}{4} = \frac{-8x}{4} + \frac{16}{4} \end{array}$$

$$y = -2x + 4$$

$$m = \frac{-2}{1}$$

$$b = 4$$

