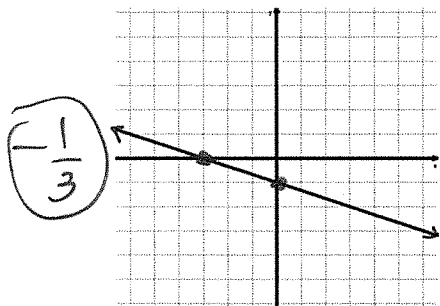
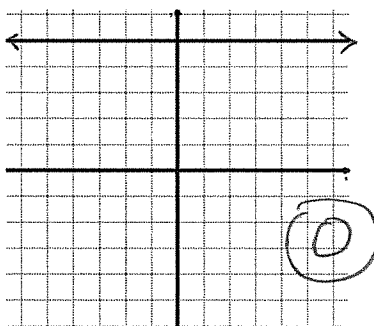


1. Find the slope of the line:

a.



b.



c. through the points (6, 4) and (-1, 5)

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

2. State the slope and y-intercept of each line, then graph the line. Make sure to give the y-intercept as a point.

a. $y = -x - 2$

b. $2x - y = 4$

$$\begin{array}{r} -2x \quad -2x \\ \hline -y = -2x + 4 \\ \hline \frac{-1}{-1} \quad \frac{-1}{-1} \quad \frac{-1}{-1} \\ \hline y = 2x - 4 \end{array}$$

c. $x = -2$

d. $4x + 2y = 1$

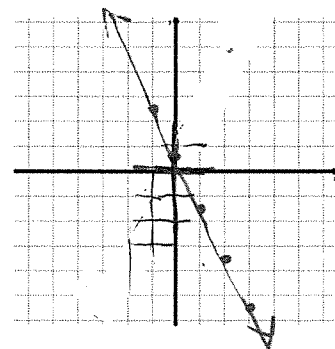
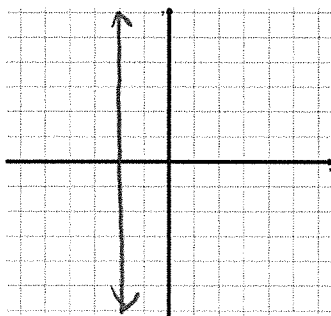
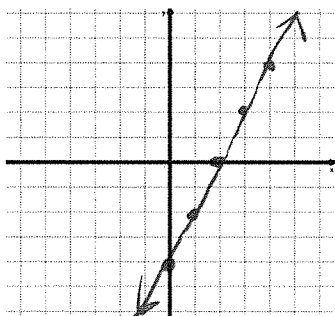
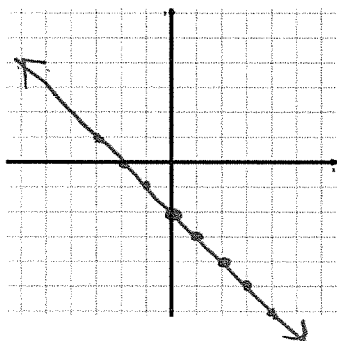
$$\begin{array}{r} -4x \quad -4x \\ \hline 2y = -4x + 1 \\ \hline \frac{2y}{2} \quad \frac{-4x}{2} \quad \frac{1}{2} \\ \hline y = -2x + \frac{1}{2} \end{array}$$

slope = -1
y-intercept = $(0, -2)$

slope = 2
y-intercept = $(0, -4)$

slope = *undefined!*
y-intercept = *none!*

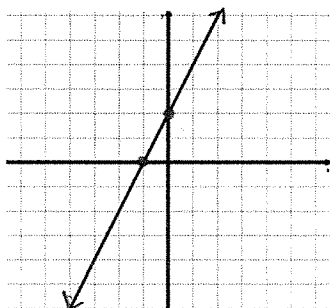
slope = -2
y-intercept = $(0, \frac{1}{2})$



3. Write the equation of each line graphed.

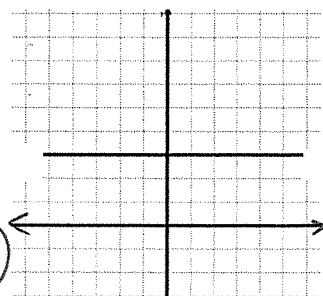
a.

$y = 2x + 2$

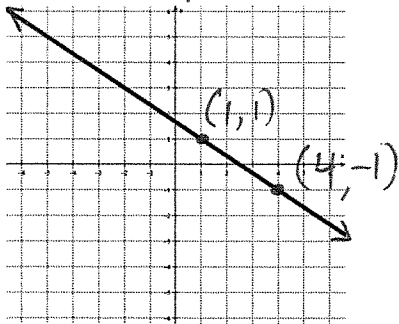


b.

$y = -3$



4. Find the equation of the line.



$$m = \frac{-1-1}{4-1} = \frac{-2}{3}$$

$$y-1 = -\frac{2}{3}(x-1)$$

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

$$\begin{array}{r} +1 \\ +1 \end{array}$$

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

OR

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

5. Write the slope-intercept form of the equation of the line.

a. through $(-1, 3)$, slope = 2

$$y-3 = 2(x+1)$$

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

$$y = 2x + 5$$

b. through $(1, 4)$ and $(-3, 12)$

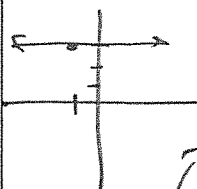
$$m = \frac{12-4}{-3-1} = \frac{8}{-4} = -2$$

$$y-4 = -2(x-1)$$

$$y-4 = -2x+2$$

$$y = -2x + 6$$

c. through $(-1, 3)$, slope = 0



$$y = 3$$

6. Solve the following equations.

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

$$\frac{2}{3}x = 7$$

$$\frac{2x}{2} = \frac{21}{2}$$

$$x = \frac{21}{2}$$

b. $-4(2x-3) = 5(3x+2)$

$$-8x + 12 = 15x + 10$$

$$\begin{array}{r} +8x \quad +8x \\ \hline 12 = 23x + 10 \end{array}$$

$$\begin{array}{r} -10 \quad -10 \\ \hline 2 = 23x \end{array}$$

$$\frac{2}{23} = \frac{23x}{23}$$

$$x = \frac{2}{23}$$

c. $3x - 10 = 6x - 3 - 5x - 6$

$$-3x - 10 = -5x - 3$$

$$+5x \quad +5x$$

$$2x - 10 = -3$$

$$+10 \quad +10$$

$$\frac{2x}{2} = \frac{7}{2}$$

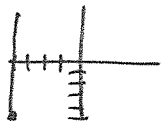
$$x = \frac{7}{2}$$

7. Write the equation of the line described in any form you want:

a. Has y-intercept $(0, -2)$ and slope 6.

$$y = 6x - 2$$

b. Is vertical and contains the point $(-4, -6)$.



$$x = -4$$

8. Which one of these points is on the line $y = 4x - 2$? Must show work!

a. $(-4, -12)$

b. $(5, 16)$

c. $(-3, -14)$

d. $(0, -4)$

$$y = 4(-4) - 2$$

$$y = -16 - 2$$

$$y = -18 \quad X$$

$$y = 4(5) - 2$$

$$y = 20 - 2$$

$$y = 18 \quad X$$

$$y = 4(-3) - 2$$

$$y = -12 - 2$$

$$y = -14 \quad \checkmark$$

9. A leaf falls from a tree. In three seconds, it's floated down to a height of 16 feet. In seven seconds, it's down at 8 feet.

a. Find the equation of the line describing the height of the leaf.

$$\begin{aligned} (3, 16) \\ (7, 8) \end{aligned} \quad m = \frac{8-16}{7-3} = \frac{-8}{4} = -2$$

$$y - 16 = -2(x - 3)$$

$$\begin{array}{r} y - 16 = -2x + 6 \\ +16 \qquad +16 \\ \hline \end{array}$$

$$y = -2x + 22$$

b. Use your equation to find the height of the leaf in 7 seconds.

$$y = -2(7) + 22$$

$$y = -14 + 22$$

$$y = 8 \text{ ft}$$

c. Write a sentence explaining what the slope means for the leaf in this problem (you must have the slope in your sentence).

$$m = -2$$

Every second, it drops two feet.

d. Write a sentence explaining what the y-intercept means for the leaf in this problem (you must have the y-intercept in your sentence).

$$(0, 22)$$

When it falls from the tree, it starts at a height of 22 feet.

e. Find the x-intercept. Then write a sentence explaining what the x-intercept means for the leaf in this problem (you must have the x-intercept in your sentence).

$$y = 0$$

$$\begin{array}{r} 0 = -2x + 22 \\ -22 \qquad -22 \\ \hline \end{array}$$

$$\frac{-22}{-2} = \frac{-2x}{-2}$$

$$x = 11$$

$$(11, 0)$$

In 11 seconds, the leaf lands on the ground.

10. Damaris wants to buy an iPhone 6. She sees that initially it will cost \$800, but she notices that every month the price goes down \$30.

a. Write an equation describing y , the cost of the iPhone after x months.

$$y = -30x + 800$$

y-intercept = \$800 (start)
slope = -\$30 (how much its dropping)

b. Use your equation to predict the cost of the iPhone after 10 months.

$$y = -30(10) + 800$$

$$= -300 + 800$$

$$y = \$500$$