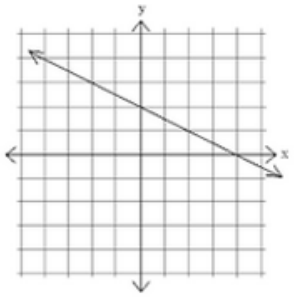
Section 3.3 – Slope-Intercept Form

Bell Ringer

1) What is the slope and y-intercept of the line $y = \frac{1}{3}x - 8$

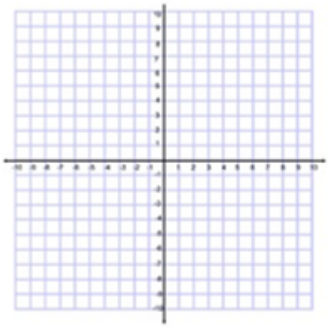
Slope = Y-Intercept =



2) Write the equation of the given line in slope-intercept form.

3) Write the equation of the line in slope-intercept form that goes through the points (-8,-10) and (4, -1)

4) Graph the line y = 2x - 3



5) Write 6x – 3y = -9 in slope-intercept form.

6) Solve for x. 5x + 2 = 2x + 14

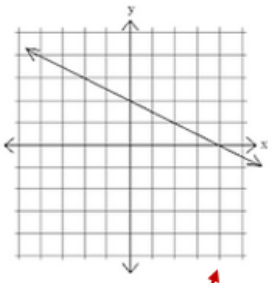
Section 3.3 – Slope-Intercept Form

Solutions

1) What is the slope and y-intercept of the line $y = \frac{1}{3}x - 8$

Slope = 1/3 Y-Intercept = -8

2) Write the equation of the given line in slope-intercept form.

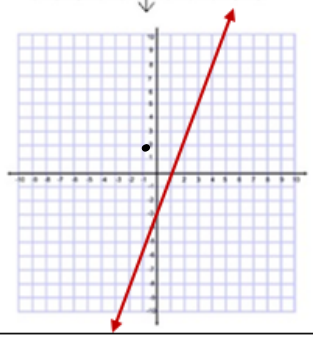


$y = -\frac{1}{2}x + 2$

3) Write the equation of the line in slope-intercept form that goes through the points (-8,-10) and (4, -1)

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

4) Graph the line y = 2x - 3



5) Write 6x – 3y = -9 in slope-intercept form.

y = 2x + 3

6) Solve for x. 5x + 2 = 2x + 14

x = 4

$y = \frac{3}{4}x + B$

$-1 = \frac{3}{4}(4) + B$

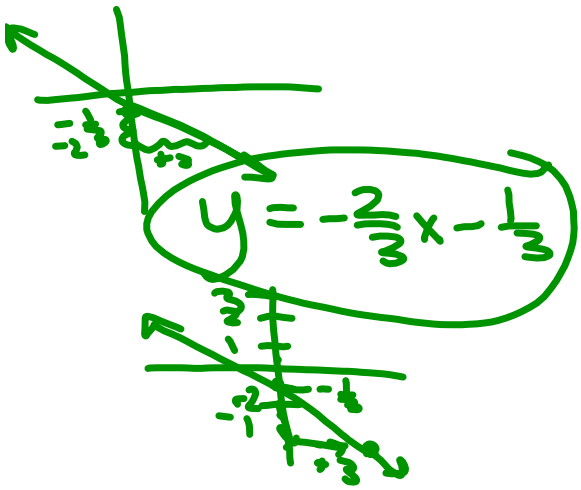
$-1 = 3 + B$

$-3 \quad -3$

$-4 = B$

correct 3.2 #s 9 -15, 17, 18, 21, 23-26, 28, 31

/16



3.2 key #s 9-15, 17, 18, 21, 23-26, 28, 31

9. yes; 3

10. $y = 10x$

11. 30 muffins

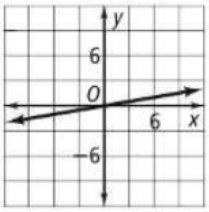
12. yes; $y = -\frac{1}{2}x$

13. always

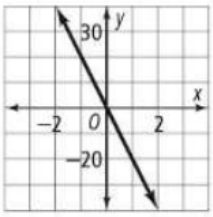
14. never

15. always

17. $y = \frac{1}{6}x$



18. $y = -20x$



21. about 5 qt

23. Yes; as the number of ounces increases, the number of Calories increases. When the number of ounces is 0, the number of Calories is 0.

24. No; as the rate increases, the time decreases.

25. Yes; as the side length increases, the perimeter increases. When the side length is 0, the perimeter is 0.

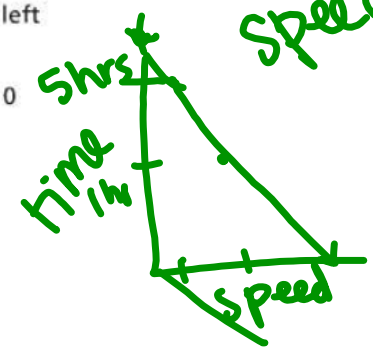
26. No; as the number of items you purchase increases, the amount of money you have left decreases.

28. y does not vary directly with x because $y \neq 0$ when $x = 0$.

31. 12

time it takes to arrive

Speed

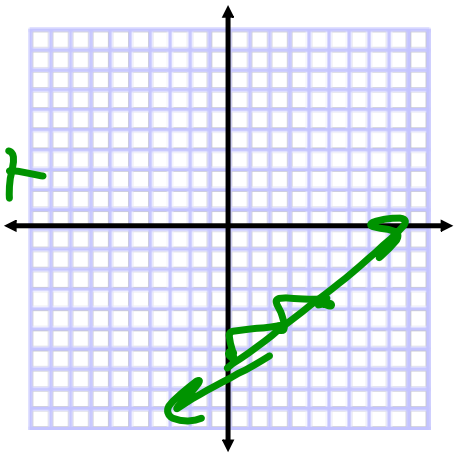


due tomorrow:

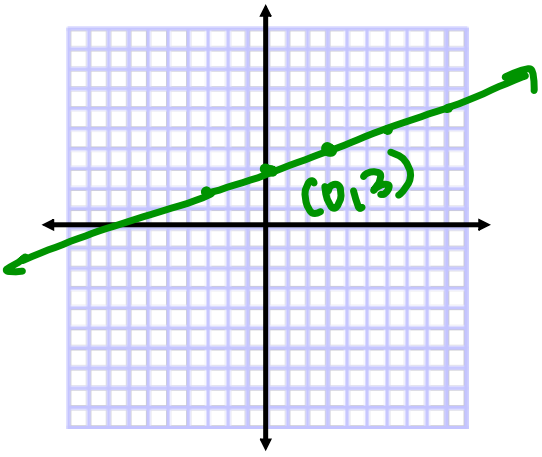
hw 3.3 #s 13 -17 all, 21-35 odds, 41

What info do you need to graph a line in slope-intercept form?

slope
y-intercept



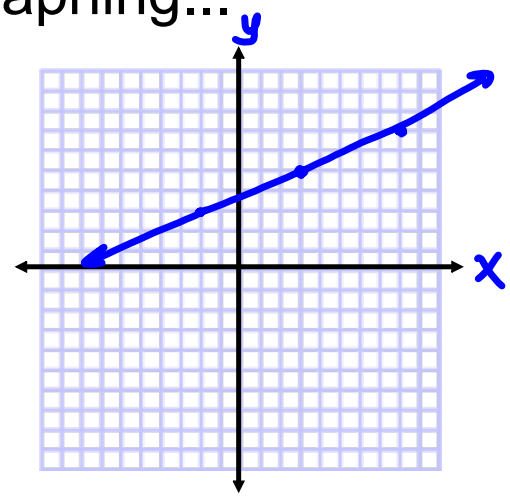
What if you're only given a slope and a point on a line that's NOT the y-intercept?



(3,4) pt

slope = 1/3 slope

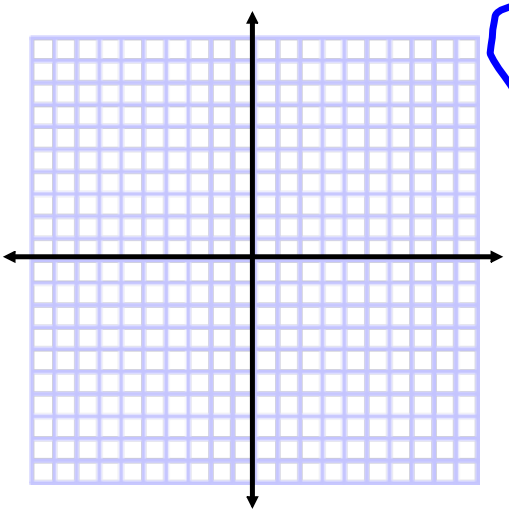
It's not always easy to find the y-intercept by graphing...



(3,5)

slope = 2/5

So, we can use point-slope form :)



$$y - y_1 = m(x - x_1)$$

(x_1, y_1) = point on line

m = slope

(3,5)

slope = 2/5

$$y - y_1 = m(x - x_1)$$

Write in point slope form the line that has a slope of 3 and passes through the point (1,4)

m=

x_1, y_1

$y-4=3(x-1)$

Convert to slope-intercept form

$y-4=3(x-1)$

$y-4=3x-3$

$+4 \quad +4$

$y=3x+1$

$$y - y_1 = m(x - x_1)$$

* Write in point slope form the line that has a slope of 1/2 and passes through the point (-2,7)

$y - 7 = \frac{1}{2}(x + 2)$

Convert to slope-intercept form

$y - 7 = \frac{1}{2}x + 1$ $+7$ $+7$ $y = \frac{1}{2}x + 8$

$$y - y_1 = m(x - x_1)$$

Write in point slope form the line that has a slope of -2/5 and passes through the point (0,-2)

$y + 2 = -\frac{2}{5}(x - 0)$

Convert to slope-intercept form

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

$$y - y_1 = m(x - x_1)$$

Write in point slope form the line that has a slope of -3 and passes through the point (-2,0)

$y - 0 = -3(x + 2)$ $y = -3(x+2)$

Convert to slope-intercept form

$y = -3x - 6$

$$y - y_1 = m(x - x_1)$$

Write in point slope form the line that passes through points (-8,5) and (1,-1)

$m = \frac{-1-5}{1+8} = \frac{-6}{9} = -\frac{2}{3}$

$y - 5 = -\frac{2}{3}(x+8)$ $y+1 = -\frac{2}{3}(x-1)$

$$y - y_1 = m(x - x_1)$$

Write in point-slope form the line that passes through points (1,-1) and (-3,6)

$m = \frac{6+1}{-3-1} = -\frac{7}{4}$

$y - 6 = -\frac{7}{4}(x+3)$ $y + 1 = -\frac{7}{4}(x-1)$

Identify the point on the line and slope for of the line

$$y+1=\frac{2}{3}(x+7)$$

$y-(-1)$ $x-(-7)$

$m=\frac{2}{3}$ $(-7,-1)$

Identify the point on the line and slope for of the line

$y - y_1 = m(x - x_1)$

$y - 2 = -\frac{1}{6}(x - 11)$

$m = -\frac{1}{6}$

$(11, 2)$

Identify the point on the line and slope for of the line

$$y+8=\frac{1}{9}(x-1)$$

m

$m=\frac{1}{9}$ (1, −8)

Identify the point on the line and slope for of the line

$$y+7=3(x+4)$$

$m=3$ $(-4,-7)$

Identify the point on the line and slope for of the line

$$y-10=6(x-8)$$

$m=6$

$(8,10)$

$y - 0 = \frac{1}{2}(x - 7)$

$(7, 0)$ $m = \frac{1}{2}$

Name_____ **HW 3.4 Point-Slope Form** **Hour**_____

In Exercises 1–6, write an equation in point-slope form of the line that passes through the given point and has the given slope.

1. (3, 4) m = 3

2. (-6, 1) m = -4

3. (0, -2) m = $\frac{4}{5}$

4. (-1, -3) m = $-\frac{1}{3}$

5. (4, 0) m = 2

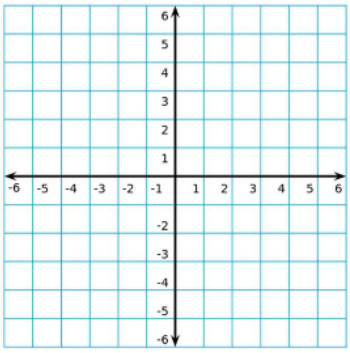
6. (-1 , 1) m = $\frac{1}{3}$

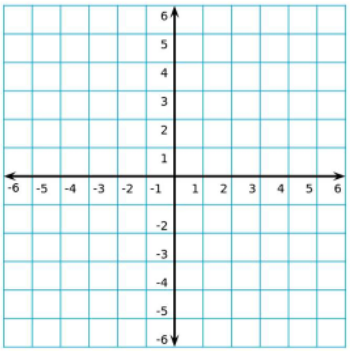
In exercises 7-9, graph the line given a point on the line and the slope.

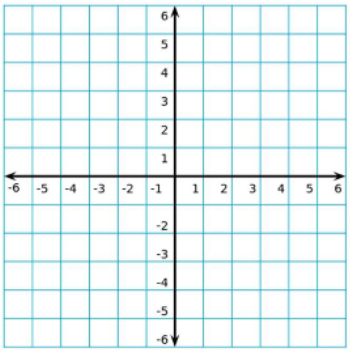
7. (-6, 5) m = - 2

8. (3, -1) m = $\frac{1}{3}$

9. (0, - 4) m = 3







In exercises 10-12, give the slope of the following lines, then name a point on each line.

10. $y + 6 = \frac{5}{6}(x + 1)$

11. $y - 3 = -\frac{2}{5}(x + 2)$

12. $y = -\frac{1}{2}(x - 5)$

Slope =

Slope =

Slope =

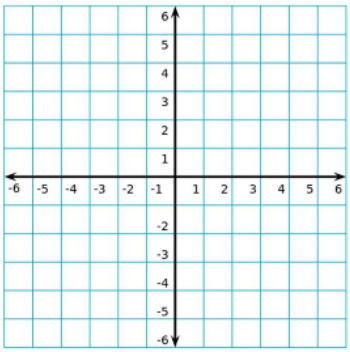
Point (,)

Point (,)

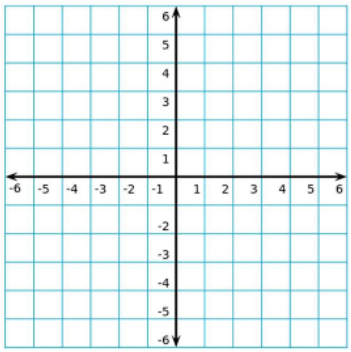
Point (,)

In exercises 13-14, graph the lines given the equation in point-slope form

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



14. $y - 5 = -\frac{3}{4}(x + 4)$



In exercises 15-16, write an equation of the line in point-slope form that passes through the given points

15. (-1, -2) and (2, 4)

16. (3, 0) and (-8, 1)

In Exercises 17–20, convert the equation from point-slope form to slope-intercept form.

17. $y + 6 = -2(x - 4)$

18. $y + 7 = 4(x + 3)$

19. $y - 8 = \frac{1}{3}(x + 9)$

20. $y - 1 = \frac{2}{5}(x + 10)$

21. Is $y - 4 = 3(x + 1)$ an equation of a line through (-2, 1)? Explain