

Review of graphing lines.

Find the equation of the line with the given slope that passes through the given point. Write the equation of the line in point-slope form.

1.  $m = 2$  and  $(-1, -3)$   
 $y + 3 = 2(x + 1)$

2.  $m = -7$  and  $(1, -1)$   
 $y + 1 = -7(x - 1)$

Find the equation of the line that passes through the given points. Write the equation in point-slope form.

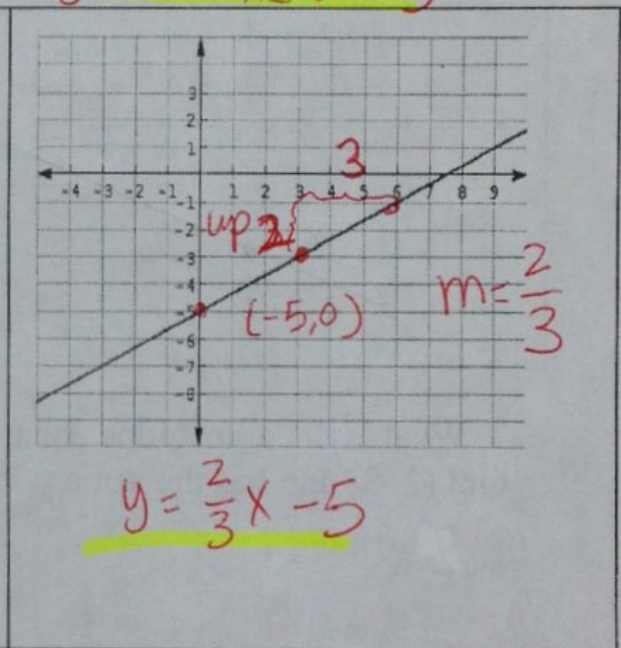
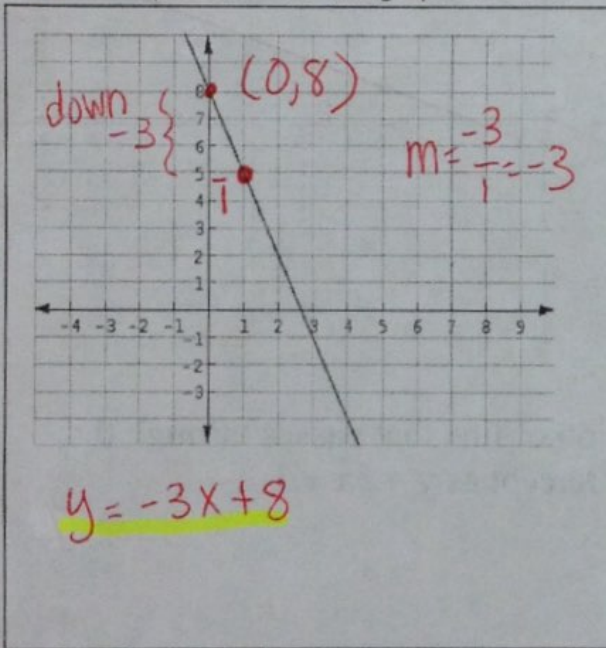
9.  $(-1, 3)$  and  $(-2, 5)$   
 $m = \frac{5-3}{-2-(-1)} = \frac{2}{-1} = -2$

10.  $(-7, 7)$  and  $(5, -6)$   
 $m = \frac{-6-7}{5-(-7)} = \frac{-13}{12}$

$y - 3 = -2(x + 1)$   
 $y - 5 = -2(x + 2)$

$y - 7 = -\frac{13}{12}(x + 7)$   
 $y + 6 = -\frac{13}{12}(x - 5)$

Write the equation of the line graphed below.



Write each point-slope equation in slope-intercept ( $y = mx + b$ ) form. Solve for  $y$ .

21.  $y + 2 = 4(x + 5)$

$y + 2 = 4x + 20$   
 $\frac{-2}{-2} = \frac{-2}{-2}$   
 $y = 4x + 18$

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22.  $y - 1 = -2(x - 9)$

$y - 1 = -2x + 18$   
 $\frac{+1}{+1} = \frac{+1}{+1}$   
 $y = -2x + 19$

$y = -2x + 19$

3. Correct the Error

Question: Find the point-slope equation of the line with slope  $-3$  that passes through the point  $(2, -10)$ .

Solution:

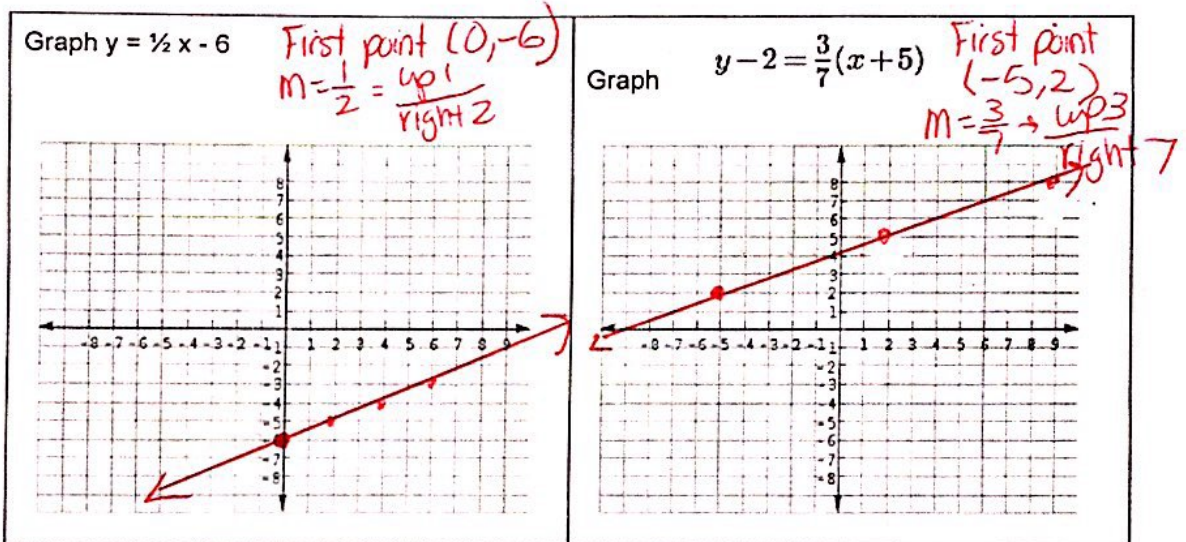
$y - y_1 = m(x - x_1)$   
 $y - (2) = -3(x - (-10))$   
 $y - 2 = -3(x + 10)$

The equation of the line is  $y - 2 = -3(x + 10)$ .

← switched the x- and y-coordinates

What is the error? Explain how to solve the problem.

It should be  $y - (-10) = -3(x - 2)$   
 $y + 10 = -3(x - 2)$



29. What is the point slope equation of line that passes through the point  $(2, -3)$  and has the same y intercept as  $y = 5x + 2$  ← This line has slope 5.  $m = 5$

$m = 5$  point  $(2, -3)$

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

$y + 3 = 5(x - 2)$

1. Explain why it's sometimes helpful to use the point-slope form instead of the slope-intercept form.

If your y-intercept is not exactly on an integer and it's easier to find another point on the line, use the point slope form. You can put any point into the point slope form.

2. What is the equation of a line that passes through the points  $(-0.92, 2.49)$  and  $(-5.62, 9.76)$ ? Write your answer in point-slope form.

$$m = \frac{9.76 - 2.49}{-5.62 - (-0.92)} = \frac{7.27}{-4.7}$$

$y - 2.49 = \left(\frac{7.27}{-4.7}\right)(x + .92)$