

6.5 - Point-Slope Form

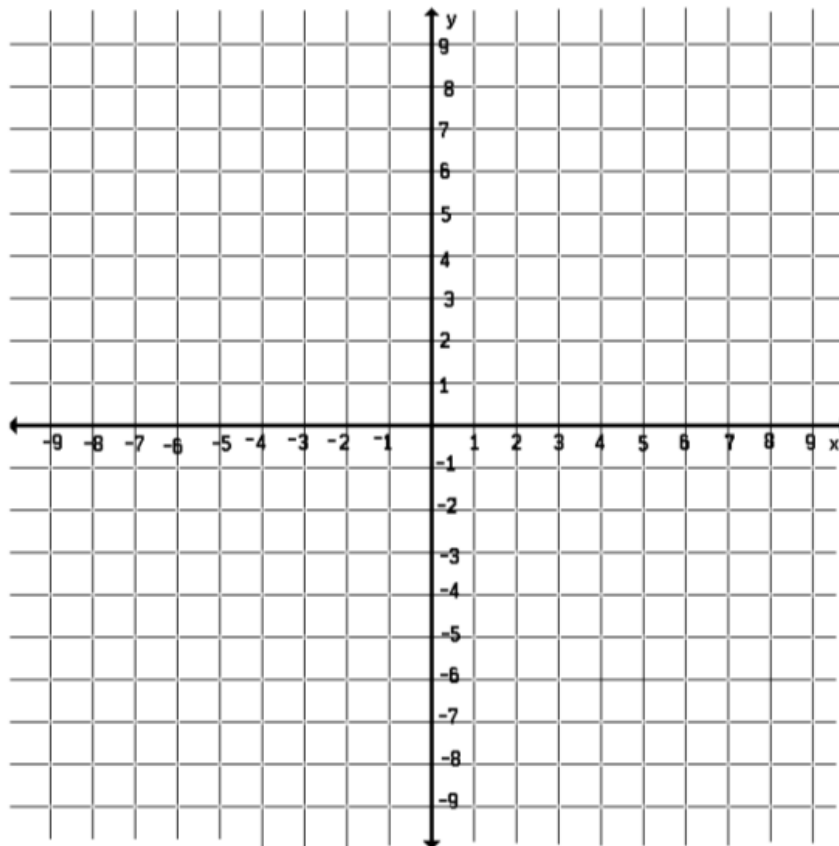
Vocabulary

- Point Slope Form

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

point: (x_1, y_1)

slope: m

1 EXAMPLEGraph the equation $y - 2 = \frac{1}{3}(x - 1)$. A^2

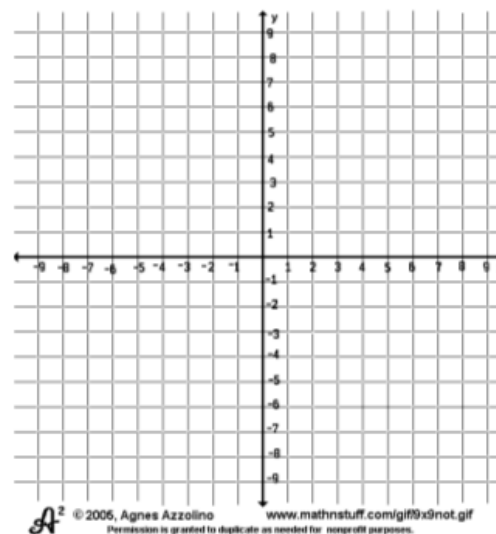
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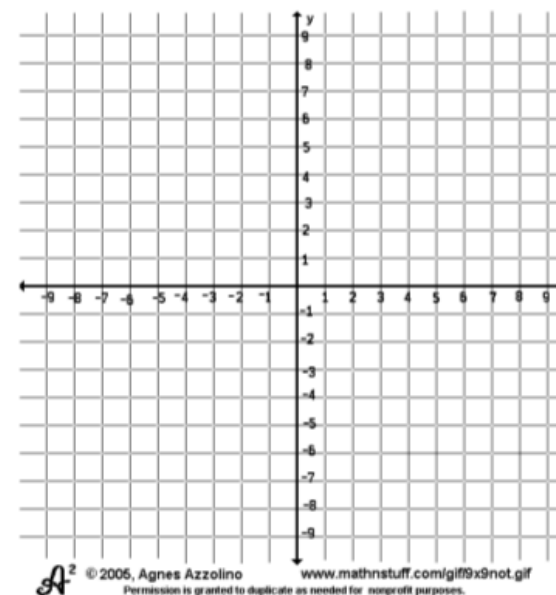
www.mathnstuff.com/gif9x9not.gif

Graph.

#1. $y - 2 = (x - 3)$



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



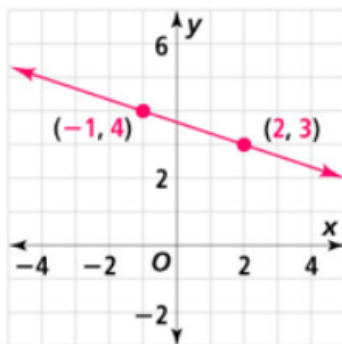
2 **EXAMPLE** Write the equation of the line with slope -2 that passes through the point $(3, -3)$.

Write an equation in point-slope form for the line through the given point that has the given slope.

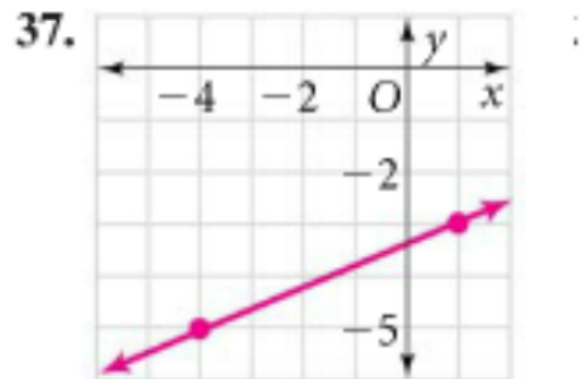
#11. $(4, 2)$ $m = -5/3$

#15. $(5, -8)$ $m = -3$

3 EXAMPLE Write equations for the line in point-slope form and in slope-intercept form.



Write an equation of each line in point-slope form.
Convert to slope-intercept form.



4 EXAMPLE Is the relationship shown by the data linear? If so, model the data with an equation.

x	y
3	6
2	4
-1	-2
-3	-6

Slope $\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$

$$\frac{6-4}{3-2} = \frac{2}{1}$$

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

$$y - 6 = 2(x - 3)$$

Is the relationship shown by the data linear? If so, model the data with an equation.

31.

x	y
-4	9
2	-3
5	-9
9	-17

slope $\frac{y_2 - y_1}{x_2 - x_1}$

$$\frac{9 - (-3)}{-4 - 2} = \frac{12}{-6} = \boxed{-2}$$

$$\frac{-3 - (-9)}{2 - 5} = \frac{6}{-3} = \boxed{-2}$$

$$\frac{-9 - (-17)}{5 - 9} = \frac{8}{-4} = \boxed{-2}$$

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

$$\boxed{y - 9 = -2(x + 4)}$$

Homework: pg. 339 #2, 4, 6, 10, 14, 18, 22, 26, 32, 36, 54, 70