

Warm Up: $y - y_1 = m(x - x_1)$

Write the equation in "Point Slope Form." ^{AND} Standard Form

$$m=2 \quad (4, -3)$$

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

$$\underbrace{y + 3}_{\rightarrow} = 2x - 8$$

$$0 = 2x - y - 11$$

$$m = -\frac{2}{3} \quad (5, 8)$$

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

$$3(y - 8) = -\frac{2}{3}x + \frac{10}{3}$$

$$3y - 24 = \underbrace{-2x + 10}_{\leftarrow}$$

$$2x + 3y - 34 = 0$$

8.3 | Point-Slope Form $y - y_1 = m(x - x_1)$ May 9, 2016.

pg 418

#20. $(0, 7) \quad m = -1$

* Always start with

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

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

$$y - 7 = -1(x - 0)$$

$$^{+x} y - 7 = \underbrace{(-1x)}_{+x}$$

* Standard Form

$$x + y - 7 = 0$$

$$Ax + By + C = 0$$

A, B, C are integers

A is positive.

$$22. (5, 4) \quad m = 0$$

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

$$y - 4 = 0(x - 5)$$

$$y - 4 = 0$$

$$25. (-3, 4) \quad m = \frac{1}{2}$$

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

$$2(y - 4) = \frac{1}{2}(x + 3)$$

$$2(y - 4) = 1(x + 3)$$

$$2y - 8 = x + 3$$

$$0 = x - 2y + 11$$

$$28. (-2, 1) \quad m = 1.5$$

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

$$y - 1 = 1.5(x + 2)$$

$$y - 1 = 1.5x + 3$$

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

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

$$0 = 3x - 2y + 8$$

$$33. A(3, 4) \quad B(4, 6)$$

First, get the slope:

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

Second, use point-slope form, using A

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

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

$$y - 4 = 2x - 6$$

$$0 = 2x - y - 2$$

Third, convert to standard.

Do # 37, 40 on boards

$$43. W(0.3, 0.4) \quad X(0.5, 0.7)$$

$$m_{WX} = \frac{0.7 - 0.4}{0.5 - 0.3} = \frac{0.3}{0.2} = 1.5$$

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

$$y - 0.7 = 1.5(x - 0.5)$$

$$100(y - 0.7 = 1.5x - 0.75)$$

$$100y - 70 = 150x - 75$$

$$0 = 150x - 100y - 5$$

$$0 = 30x - 20y - 1$$

45. $A\left(\frac{2}{3}, \frac{1}{4}\right) \quad B\left(\frac{1}{3}, \frac{1}{3}\right)$

$$m_{AB} = \frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{3} - \frac{2}{3}} = \frac{\frac{4}{12} - \frac{3}{12}}{-\frac{1}{3}} = \frac{\frac{1}{12}}{-\frac{1}{3}} = \frac{1}{12} \times \frac{-3}{1} = \frac{-3}{12} = -\frac{1}{4}$$

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

$$y - \frac{1}{3} = -\frac{1}{4}\left(x - \frac{1}{3}\right)$$

$$12\left(y - \frac{1}{3}\right) = -\frac{1}{4}x + \frac{1}{12}$$

$$12y - 4 = -3x + 1$$

$$3x + 12y - 5 = 0 \leftarrow \text{DONE!!}$$

50. Looking at the graph: $A(0, 1) \quad B(1, 3)$

$$m_{AB} = \frac{3-1}{1-0} = \frac{2}{1} = 2$$

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

$$y - 1 = 2(x - 0)$$

$$y - 1 = 2x$$

$$0 = 2x - y + 1$$

54. Horizontal $\therefore m = 0$

$$\therefore y = -3$$

$$\boxed{y + 3 = 0}$$

55. Vertical $\therefore m = \text{undefined}$

$$\therefore x = 2$$

$$\boxed{x - 2 = 0}$$

Homework pg 418 # 34 to 52