Bell Work:

1.) Write the equation, and graph the line through (-4, 2) and (0, 7)

2.) Graph: $4x - 3y = 12$

From Last Time…

New Material

Page 78 #1, 3, 5, 9, 19, 23, 29, 33, 49

Mixed Review

Page 80 #67-70

ALGEBRA 3

Day 17

Chapter 2 Section 4
More about Linear Equations

Objective: Write equation of line through any two points

Linear Equations:

New This Time:

- **Point-Slope Form:** $y - y_1 = m(x - x_1)$

From Last Time:

- **Slope – Intercept Form:** **y = mx + b**

  (m is the slope, and b is the y-intercept)

- $slope = m = \frac{rise}{run} = \frac{y_2 - y_1}{x_2 - x_1}$

Reminder about slopes of specific lines

- **Parallel Lines:**

  Have Slopes that are Equal

- **Perpendicular Lines:**

  Have slopes that are Opposite Recipricals

Examples: Write the Equation

1.) The line has a slope of -1/2 and goes through (2,3)

2.) m = 3 and through (5, 2)

Example Work Shown:

1.) The line has a slope of -1/2 and goes through (2,3)

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

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

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

2.) m = 3 and through (5, 2)

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

$$y - 2 = 3x - 15$$

$$y = 3x - 13$$

Write Equation through (-2, -1) and (3, 4)

Write Equation through (-2, -1) and (3, 4)

$$m = \frac{4 - (-1)}{3 - (-2)} = \frac{5}{5} = 1$$

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

Example:

- *Write an equation of the line that passes through (4, 6) and is parallel to the line that passes through (6, -6) and (10, -4)*

Example Answer

Write and equation of the line that passes through (4, 6) and is parallel to the line that passes through (6, -6) and (10, -4)

$$\boldsymbol{m} = \frac{-4-(-6)}{10-6} = \frac{2}{4} = \mathbf{\frac{1}{2}}$$

$$y - 6 = \frac{1}{2}(x - 4)$$

$$\boldsymbol{y = \frac{1}{2}x + 4}$$

For Next Time…

New Material

Page 86 #1, 11, 17, 19, 27, 32

Mixed Review

Page 88 #60, 62, 66, 67