Unit 4 Objective 5 Remediation

Write or identify a linear equation given two points

Slope-intercept Form: $y = mx + b$ where *m* is the slope of the line and *b* is the y-intercept.

- **Find the slope of the line $m = \frac{y_2 - y_1}{x_2 - x_1}$**
- **Use the one of the given points to substitute for *x* and *y***
- **Substitute the found value of *m***
- **Solve for *b***
- **Re-write the slope-intercept form substituting for *m* and *b***

Example One

Write the equation of the line in slope-intercept form that goes through the points (0, 2) ; (2, 3)

$$m = \frac{3-2}{2-0} = {}^{1}/_{2}$$

$$y = mx + b$$

$$3 = {}^{1}/_{2}(2) + b$$

$$3 = 1 + b$$

$$2 = b$$

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

Example Two

Write the equation of the line in slope-intercept form that goes through the points $(-5, 3)$; $(1, -3)$

$$m = \frac{-3-3}{1-(-5)} = \frac{-6}{6} = 1$$

$$y = mx + b$$

$$-3 = 1(1) + b$$

$$-3 = 1 + b$$

$$-4 = b$$

$$\boxed{y = x - 4}$$

Try These

Write the equation in slope-intercept form.

1. (3, 4) ; (2, 1)

2. (-2, 4) ; (4, -2)

3. (-1, 4) ; (-8, 0)

4. (4, 5) ; (5, -2)

5. (3, -4) ; (3, -6)

6. (-2, -5) ; (2, 5)

7. (3, 2) ; (-1, 3)

8. (4, 3) ; (5, -1)