Unit 4 Objective 4 Remediation

Write or identify a linear equation given the slope and a point

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

- **Substitute the slope for *m***
- **Use the given point to substitute for *x* and *y***
- **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.

Slope = $\frac{1}{2}$; Goes through (2, 3)

$$y = mx + b$$

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

$$3 = 1 + b$$

$$2 = b$$

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

Example Two

Write the equation of the line in slope-intercept form.

Slope = -3 ; Goes through $(-1, -5)$

$$y = mx + b$$

$$-5 = -3(-1) + b$$

$$-5 = 3 + b$$

$$-2 = b$$

$$\boxed{y = -3x - 2}$$

Try These

Write the equation in slope-intercept form.

1. Slope = 2 ; Goes through (2, 1)

2. Slope = 3 ; Goes through (4, -2)

3. Slope = $\frac{3}{4}$; Goes through (-8, 0)

4. Slope = -1 ; Goes through (5, -2)

5. Slope = 0 ; Goes through (3, -6)

6. Slope = $-\frac{1}{2}$; Goes through (2, 5)

7. Slope = $\frac{2}{3}$; Goes through (-1, 3)

8. Slope = - 3 ; Goes through (5, -1)

9. Slope = - 6 ; Goes through (2, 0)

10. Slope = $\frac{1}{2}$; Goes through (5, -3)