Algebra I   Worksheet #2   Unit 7   Selected Solutions

Write the equation of each line described. If the line is oblique, then write the slope-intercept equation.

2. The line with slope 4 through the point (2, 5). oblique line

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

$$x_1 = 2 \quad y_1 = 5 \quad m = 4$$

$$y - 5 = 4(x - 2)$$

$$y - 5 = 4x - 8$$

$$\boxed{y = 4x - 3}$$

3. The line with slope 2 through the point (-2, 1). oblique line

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

$$x_1 = -2 \quad y_1 = 1 \quad m = 2$$

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

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

$$y - 1 = 2x + 4$$

$$\boxed{y = 2x + 5}$$

11. The line through (2, 3) and (0, 4).

This is an oblique line.

Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 3}{0 - 2} = \frac{1}{-2} = \frac{-1}{2}$$

The y-intercept is 4.

$$y = mx + b$$

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

15. The line through (4, 2) and (-2, 2).

This is a horizontal line.

$$\boxed{y = 2}$$

19. The line through (2, 5) and (-1, 3).

This is an oblique line.

Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 5}{-1 - 2} = \frac{-2}{-3} = \frac{2}{3}$$

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

$$x_1 = 2 \quad y_1 = 5 \quad m = \frac{2}{3}$$

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

$$y - 5 = \frac{2}{3}x - \frac{4}{3}$$

$$\boxed{y = \frac{2}{3}x + \frac{11}{3}}$$