Algebra I Worksheet #4 Unit 7 Selected Solutions

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

5. The line with slope 5/3 through the point (-2, 3).

This is an oblique line. Use the point-slope equation.

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

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

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

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

$$y - 3 = \frac{5}{3}x + \frac{10}{3}$$

$$\boxed{y = \frac{5}{3}x + \frac{19}{3}}$$

7. The line through (0, 5) and (-4, 3).

This is an oblique line.

Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 5}{-4 - 0} = \frac{-2}{-4} = \frac{1}{2}$$

The y-intercept is 5.

$$y = mx + b$$

$$\boxed{y = \frac{1}{2}x + 5}$$

8. The line through (-3, 8) and (1, 8).

This is a horizontal line.

$$\boxed{y = 8}$$

10. The line through (7, 2) and (3, -1).

This is an oblique line.

Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - 2}{3 - 7} = \frac{-3}{-4} = \frac{3}{4}$$

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

$$x_1 = 7 \quad y_1 = 2 \quad m = \frac{3}{4}$$

$$y - 2 = \frac{3}{4}(x - 7)$$

$$y - 2 = \frac{3}{4}x - \frac{21}{4}$$

$$\boxed{y = \frac{3}{4}x - \frac{13}{4}}$$