Exercise 70

For the following exercises, write the equation of the line satisfying the given conditions in slope-intercept form.

$$\text{Slope} = \frac{2}{5}, \quad x\text{-intercept} = 8$$

Solution

The line that passes through (x_0, y_0) with the slope m has the following equation.

$$y - y_0 = m(x - x_0)$$

This is the point-slope formula. Here the slope is $m = 2/5$, and the point is $(8, 0)$ because the x-intercept is the point where the line passes the x-axis. (Everywhere on the x-axis y is equal to 0.)

$$y - 0 = \frac{2}{5}(x - 8)$$

$$y = \frac{2}{5}x - \frac{16}{5}$$