Find the equation of the line that has an $x$-intercept of 5 and a $y$-intercept of $-2$. Write the equation in slope-intercept form.

Start by writing the intercepts as ordered pairs. The $x$-intercept of 5 would be expressed as the ordered pair $(5, 0)$, while the $y$-intercept of $-2$ would be written as an ordered pair as $(0, -2)$. Now using these two ordered pairs, we can find the slope of the line.

$$m = \frac{\Delta y}{\Delta x}$$

$$m = \frac{-2}{-5} = \frac{2}{5}$$

Now that I know the slope of the line, I can use the slope and one of the two ordered pairs to find the equation of the line using either the point-slope formula or slope-intercept form. I will use the ordered pair $(5, 0)$ along with the slope to find the equation using point-slope form.

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

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

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