

1.3.33

Exercise 1.3.33 Consider the line containing the point $P = (1, 2)$ and slope $m = 3$. Find the point slope form of the equation of the line.

Solution

The point slope form of a line containing point $P = (x_1, y_1) = (1, 2)$ and with slope $m = 3$ is $y - y_1 = m(x - x_1)$. So with $x_1 = 1$, $y_1 = 2$, and $m = 3$ we have

$$y - (2) = (3)(x - (1))$$

$$\text{or } \boxed{y - 2 = 3(x - 1)}$$

in slope intercept form, this is

$$y = 3(x - 1) + 2 = 3x - 3 + 2 = 3x - 1,$$

$$\text{or } \boxed{y = 3x - 1}, \quad \square$$