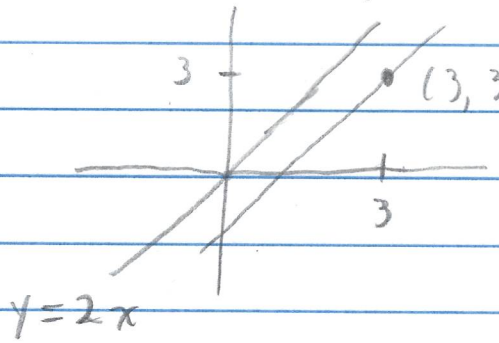
1.3.49

Exercise 1.3.49 Find an equation of the line L that is parallel to the line $y = 2x$ and contains the point $(3, 3)$:



Solution

Notice that the line $y = 2x$ is in the slope intercept form $y = mx + b$ where $m = 2$ and $b = 0$. By the Criterion for Parallel Lines (Theorem 1.3.E), a line parallel to line $y = 2x$ will also have slope $m = 2$. So the desired line contains point $(x_1, y_1) = (3, 3)$ and has slope $m = 2$. So by the point slope formula $y - y_1 = m(x - x_1)$ we have $y - (3) = (2)(x - (3))$ or $y - 3 = 2(x - 3)$ or $y = 2(x-3) + 3 = 2x - 3$. So the desired line is $\boxed{y = 2x - 3}$. □