

Exercise 1.3.105 Find the intercepts and graph the line $\frac{1}{2}x + \frac{1}{3}y = 1$.

Solution

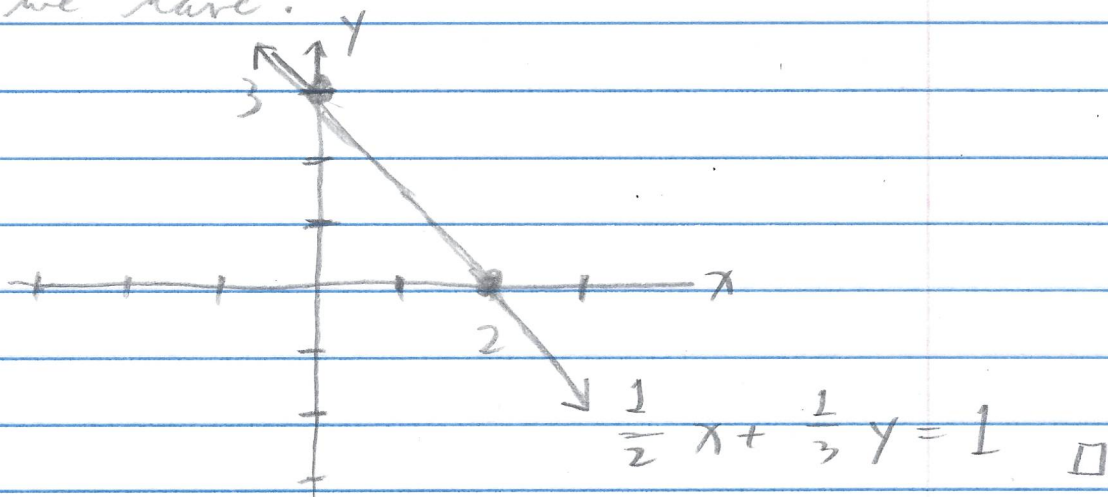
To find the x -intercept, we set $y = 0$ to get $\frac{1}{2}x + \frac{1}{3}(0) = 1$ or $\frac{1}{2}x = 1$

or $x = 2$. So the x -intercept is $(2, 0)$.

In the y -intercept, we set $x = 0$ to get $\frac{1}{2}(0) + \frac{1}{3}y = 1$ or $\frac{1}{3}y = 1$ or $y = 3$.

So the y -intercept is $(0, 3)$.

Two points (in this case, intercepts) are sufficient to graph a line, and we have:



Notice that the slope is

$$m = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x} = \frac{-3}{2}.$$