

Two lines are parallel when the slopes are the same. This means the lines always point in the same direction. As the little triangles show, the slopes of both lines are the same.

$$\text{Slope of Line 1} = \text{Slope of Line 2} = \frac{2}{1}$$

Example: Find a line parallel to $\frac{1}{2}y = x + 1$

1) Multiply both sides by 2 to clear the fraction of $\frac{1}{2}$.

Setup the multiplication on both sides

$$2 \cdot \frac{1}{2} y = 2(x + 1)$$

On the left, $2 \cdot \frac{1}{2} = 1$ and on the right, $2(x + 1) = 2x + 2$

$$y = 2x + 2$$

2) Now you can identify the slope as 2. Once you know the slope, you can choose the y-intercept to be whatever you like. For example, each line below is parallel to the original.

$$y = 2x + 3$$

$$y = 2x - 4$$

$$y = 2x + \frac{3}{2}$$

