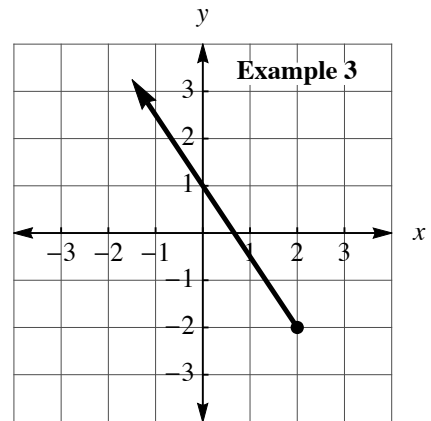
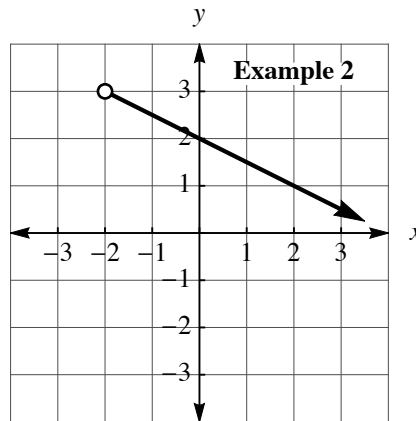
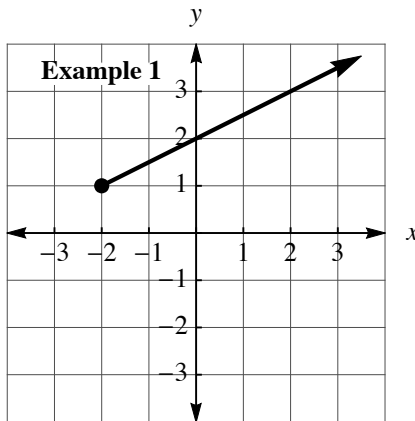


The Equation of a Ray: More Examples

Three more examples of finding the equation of a ray are given below.



Example 1

Step 1

Find the equation of the corresponding line.

From the graph, the y-intercept is $b = 2$. Also from the graph, we can see that the slope is

$$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{1}{2}$$

Using the slope-intercept form of the equation of the line, we can get its equation:

$$y = mx + b$$

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

$$y = \frac{1}{2}x + 2$$

Step 2

Find the inequality that describes the valid x -values. The valid x values are all values greater than and equal to -2 .

We can write this as:

$$x \geq -2$$

Step 3

Put the equation and inequality together into a single statement:

$$y = \frac{1}{2}x + 2 \text{ and } x \geq -2$$

Example 2

Step 1

Find the equation of the corresponding line.

From the graph, the y-intercept is $b = 2$. Also from the graph, we can see that the slope is

$$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{-1}{2}$$

Using the slope-intercept form of the equation of the line, we can get its equation:

$$y = mx + b$$

$$y = \left(-\frac{1}{2}\right)x + (2)$$

$$y = -\frac{1}{2}x + 2$$

Step 2

Find the inequality that describes the valid x -values. The valid x values are all values greater than (but not equal to!) -2 . We can write this as:

$$x > -2$$

Step 3

Put the equation and inequality together into a single statement:

$$y = -\frac{1}{2}x + 2 \text{ and } x > -2$$

Example 3

Step 1

Find the equation of the corresponding line.

From the graph, the y -intercept is $b = 1$. Also from the graph, we can see that the slope is

$$m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{-3}{2}$$

Using the slope-intercept form of the equation of the line, we can get its equation:

$$y = mx + b$$

$$y = \left(-\frac{3}{2}\right)x + (1)$$

$$y = -\frac{3}{2}x + 1$$

Step 2

Find the inequality that describes the valid x -values. The valid x values are all values less than and equal 2. We can write this as:

$$x < 2$$

Step 3

Put the equation and inequality together into a single statement:

$$y = -\frac{3}{2}x + 1 \text{ and } x < 2$$