CHAPTER 6 Analyse Linear Relations
6.3 Graph a Line Using Intercepts
Graphing a Line Using Intercepts

Example:

a) Use the intercepts to graph the line $3x - 4y = 12$.

b) A line has an x-intercept of –2 and a y-intercept of 3. Use the intercepts to find the slope of the line.

Solution:

a) To find the x-intercept, substitute $y = 0$.

$$\begin{aligned} 3x - 4(0) &= 12 \\ 3x &= 12 \\ \frac{3x}{3} &= \frac{12}{3} \\ x &= 4 \end{aligned}$$

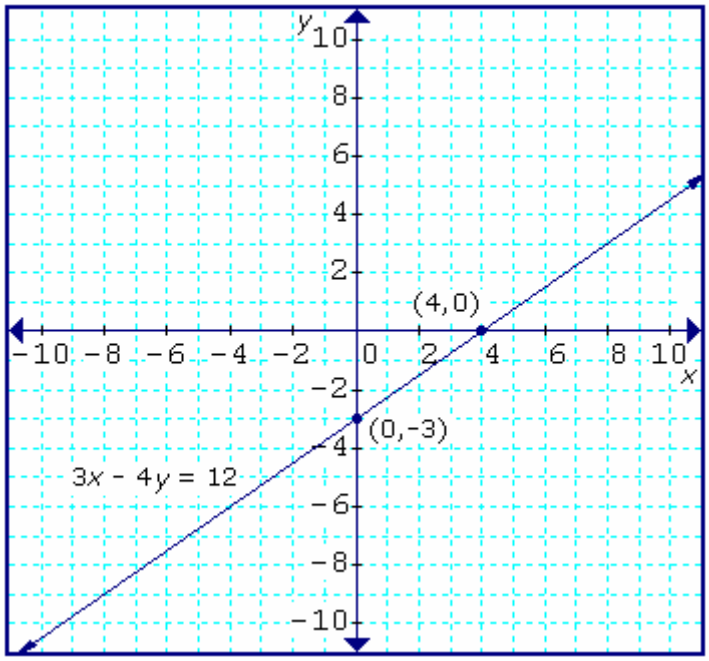
The x-intercept is 4.
The point (4, 0) is on the line.

To find the y-intercept, substitute $x = 0$.

$$\begin{aligned} 3(0) - 4y &= 12 \\ -4y &= 12 \\ \frac{-4y}{-4} &= \frac{12}{-4} \\ y &= -3 \end{aligned}$$

The y-intercept is –3.
The point (0, –3) is on the line.

The graph is shown.



b) The points (–2, 0) and (0, 3) are on the line. Use the slope formula.

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{3 - 0}{0 - (-2)} \\ &= \frac{3}{2} \end{aligned}$$

The slope of the line is $\frac{3}{2}$.

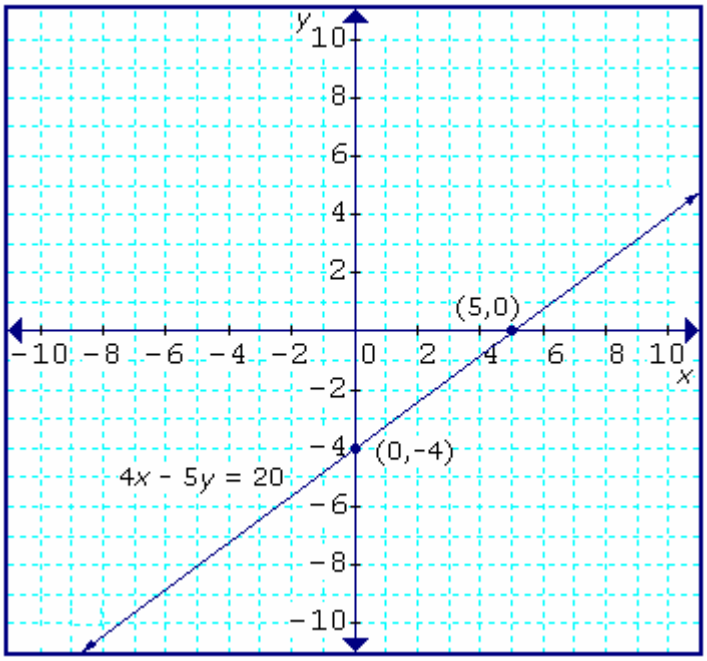
Practice:

1. a) Use the intercepts to graph the line $4x - 5y = 20$.

b) A line has an x-intercept of 7 and a y-intercept of –4. Use the intercepts to find the slope of the line.

Answers:

1. a) The graph is shown.



b) The slope of the line is $\frac{4}{7}$.