7.4 KeyConcepts 3 Graphing a Line Using Intercepts Worked Example

Example: Use intercepts to graph the line described by the equation $4x - 3y = -12$.

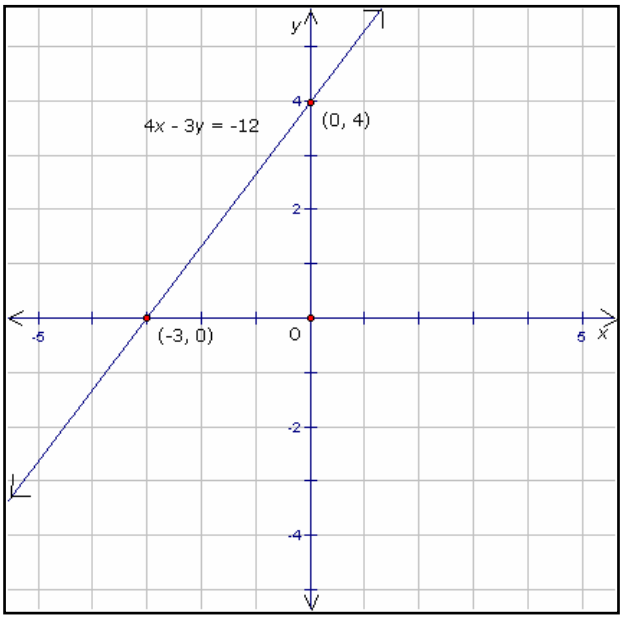
Solution: Find the x-intercept. Let $y = 0$.

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

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

Find the y-intercept. Let $x = 0$.

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



The y-intercept is 4. The point (0, 4) is on the line. Plot the intercepts. Draw the line through the intercepts. Label the line with the equation.

Practice:

1. Use intercepts to graph the line described by the equation $5x - 6y = 30$.

2. Use intercepts to graph the line described by the equation $8x - 3y = -24$.

Answers: 1. x-intercept 6, y-intercept –5 2. x-intercept –3, y-intercept 8