

Module 5 Lesson 5

Share 1 – 4 Possible Solutions

1. To find two integral points on the graph of $5x + 3y - 8 = 0$, examine the differences between multiples of the coefficient of the x -term and the constant. Look for a difference that is divisible by the coefficient of the y -term.

For example,

x	$5x$	$5x - 8$	Divisible by 3?
1	5	-3	yes
2	10	2	no
3	15	7	no
4	20	12	yes

Choose the values of x that would result in a difference (between the x -term and the constant) that is divisible by the coefficient of the y -term.

Substitute $x = 1$.

$$5x + 3y - 8 = 0$$

$$5(1) + 3y - 8 = 0$$

$$5 + 3y - 8 = 0$$

$$3y - 3 = 0$$

$$3y = 3$$

$$y = 1$$

Therefore, one point on the graph is $1, 1$.

Substitute $x = 4$.

$$5x + 3y - 8 = 0$$

$$5(4) + 3y - 8 = 0$$

$$20 + 3y - 8 = 0$$

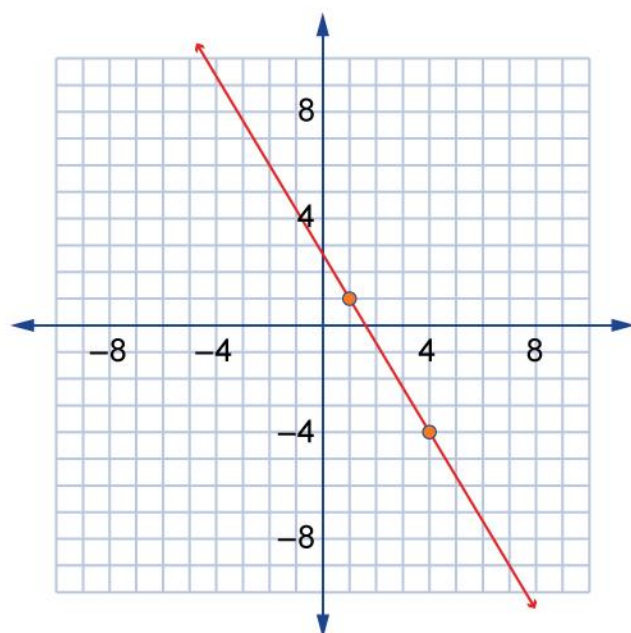
$$3y + 12 = 0$$

$$3y = -12$$

$$y = -4$$

Therefore, another point on the graph is $4, -4$.

The graph can be sketched to look like the following.



The following are sample answers.

2. Integer coordinates can be plotted more accurately than coordinates expressed as decimals or fractions.
3. Some graphing display technology allows a person to enter the equation, and then the person can access a corresponding table of values. This table can be examined for integral points.
4. Recall that you can graph a line by knowing its slope and a single point. Therefore, the equation of the line can be rearranged into slope-intercept form to find the slope. Then apply the slope to the point that was previously determined.