Name _____ Date _____

4.5 Graphing Linear Equations in Standard Form

For use with Activity 4.5

Essential Question How can you describe the graph of the equation $ax + by = c$?

1 ACTIVITY: Using a Table to Plot Points

Work with a partner. You sold a total of $16 worth of tickets to a school concert. You lost track of how many of each type of ticket you sold.

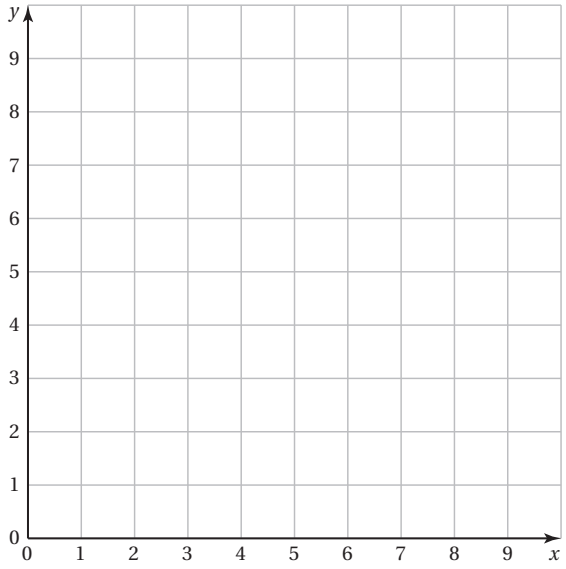
$$\boxed{\square}_{\text{adult}} \cdot \boxed{\text{Number of adult tickets}} + \boxed{\square}_{\text{student}} \cdot \boxed{\text{Number of student tickets}} = \boxed{\square}$$

a. Let x represent the number of adult tickets.
Let y represent the number of student tickets.
Write an equation that relates x and y.

b. Complete the table showing the different combinations of tickets you might have sold.

Number of Adult Tickets, *x*					
Number of Student Tickets, *y*					

c. Plot the points from the table. Describe the pattern formed by the points.



d. If you remember how many adult tickets you sold, can you determine how many student tickets you sold? Explain your reasoning.

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4.5 Graphing Linear Equations in Standard Form (continued)

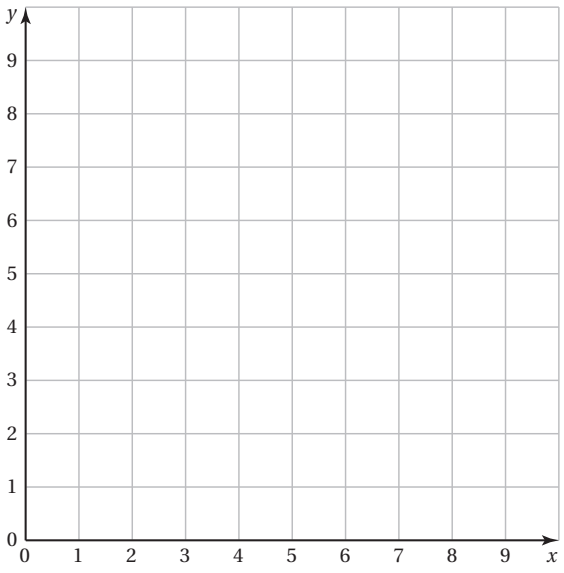
2 ACTIVITY: Rewriting an Equation

Work with a partner. You sold a total of $16 worth of cheese. You forgot how many pounds of each type of cheese you sold.

$$\frac{\square}{\text{lb}} \bullet \text{Pounds of swiss} + \frac{\square}{\text{lb}} \bullet \text{Pound of cheddar} = \square$$

a. Let x represent the number of pounds of swiss cheese. Let y represent the number of pounds of cheddar cheese. Write an equation that relates x and y.

b. Rewrite the equation in slope-intercept form. Then graph the equation.



4.5 Graphing Linear Equations in Standard Form (continued)

c. You sold 2 pounds of cheddar cheese. How many pounds of swiss cheese did you sell?

d. Does the value $x = 2.5$ make sense in the context of the problem? Explain.

What Is Your Answer?

3. IN YOUR OWN WORDS How can you describe the graph of the equation $ax + by = c$?

4. Activities 1 and 2 show two different methods for graphing $ax + by = c$. Describe the two methods. Which method do you prefer? Explain.

5. Write a real-life problem that is similar to those shown in Activities 1 and 2.

6. Why do you think it might be easier to graph $x + y = 10$ without rewriting it in slope-intercept form and then graphing?