

EXPLORE & REASON

Jae makes a playlist of 24 songs for a party. Since he prefers country and rock music, he builds the playlist from those two types of songs.



2-3
Standard Form

PearsonRealize.com

A. Determine two different combinations of country and rock songs that Jae could use for his playlist.

B. Plot those combinations on graph paper. Extend a line through the points.

C. **Model With Mathematics** Can you use the line to find other meaningful points? Explain. © MP.4

HABITS OF MIND

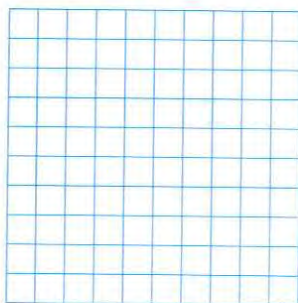
Use Appropriate Tools Why is it helpful to use a graph rather than a table to answer the question? Are there any disadvantages to using a graph? © MP.5

**EXAMPLE 1** **Try It! Understand Standard Form of a Linear Equation**

1. Is it easier to find the x -intercept of the graph of the equations in Part B using slope-intercept or standard form? Explain.

EXAMPLE 2 **Try It! Sketch the Graph of a Linear Equation in Standard Form**

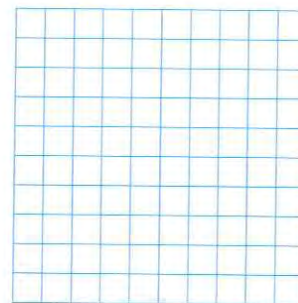
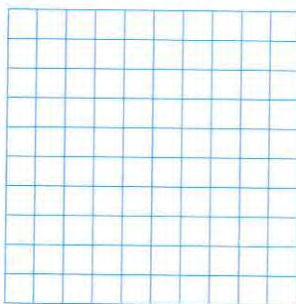
2. Sketch the graph of $4x + 5y = 10$.

**EXAMPLE 3** **Try It! Relate Standard Form to Horizontal and Vertical Lines**

3. Sketch the graph of each equation.

a. $3y = -18$

b. $4x = 12$

**HABITS OF MIND**

Generalize Given a linear equation in standard form, can you always find the x - and y -intercepts? Explain. © MP.8



**EXAMPLE 4**  **Try It!** Use the Standard Form of a Linear Equation

4. How does the equation change if Tamira has \$60 to spend on a mixture of almonds and cashews? How many pounds of nuts can she buy if she buys only cashews? Only almonds? A mixture of both?

HABITS OF MIND

Model With Mathematics How can you tell when every point on the graph is a solution to the problem? © MP.4

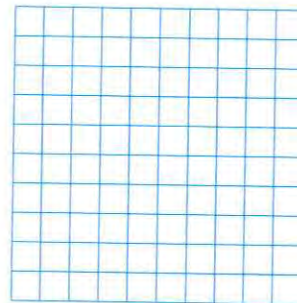
Do You UNDERSTAND?

- ESSENTIAL QUESTION** What information does the standard form of a linear equation reveal about a line?
- Communicate Precisely** How is the standard form of a linear equation similar to and different from the slope-intercept form? © MP.6
- Error Analysis** Malcolm says that $y = -1.5x + 4$ in standard form is $1.5x + y = 4$. What is the error that Malcolm made? © MP.3
- Use Structure** Describe a situation in which the standard form of a linear equation is a more useful than the slope-intercept form. © MP.7

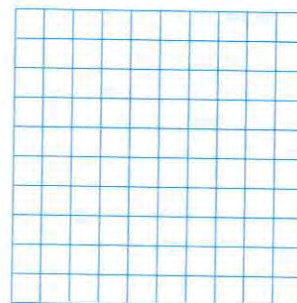
Do You KNOW HOW?

Use the x - and y -intercepts to sketch a graph of each equation.

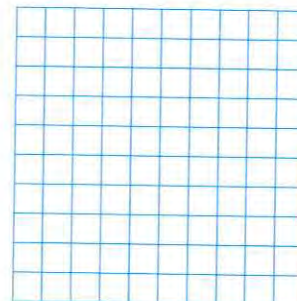
5. $x + 4y = 8$



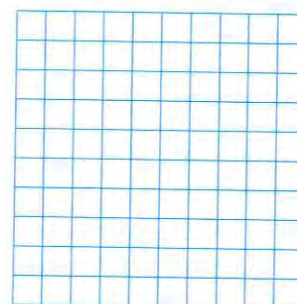
6. $3x - 4y = 24$



7. $5x = 20$



8. $-3y = 9$



- Deondra has \$12 to spend on a mixture of green and red grapes. What equation can she use to graph a line showing the different amounts of green and red grapes she can buy for \$12?

