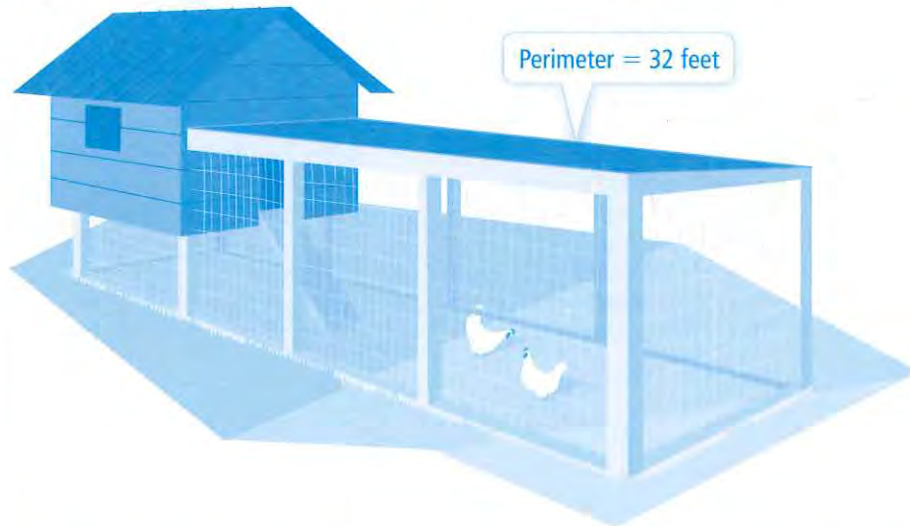


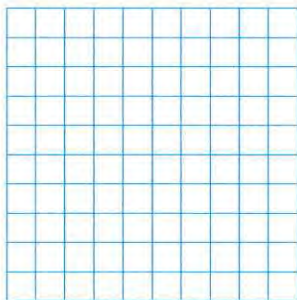
MODEL & DISCUSS

A homeowner has 32 feet of fencing for a rectangular chicken run.



- A. Make a table of values for the length, width, and area of different rectangles with perimeter 32 ft. Then write a function for the area, in terms of width, of rectangles with this perimeter.

- B. Graph your function.



- C. **Communicate Precisely** Explain what happens where the graph intersects the x-axis. © MP.6

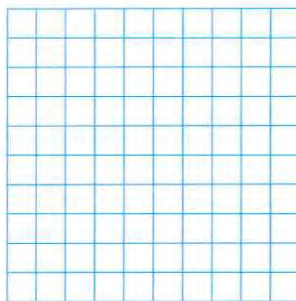
HABITS OF MIND

Make Sense and Persevere For what widths will the area of the chicken run be at least 55 ft²? © MP.1

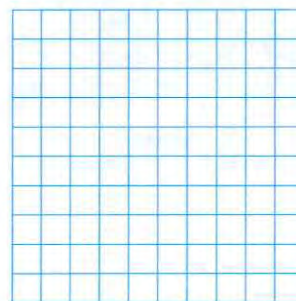
**EXAMPLE 1** **Try It!** Use a Graph to Solve an Equation

1. Use a graph to solve the equation.

a. $5x - 12 = 3$

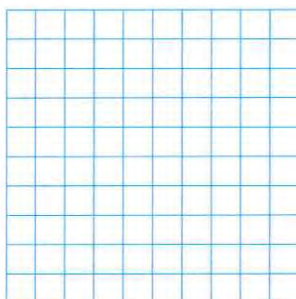


b. $-|x - 2| = -\frac{1}{2}x - 2$

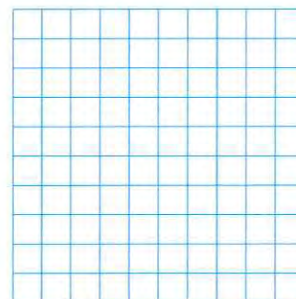
**EXAMPLE 2** **Try It!** Solve a One-Variable Inequality by Graphing

2. Use a graph to solve each inequality.

a. $x^2 + 6x + 5 \geq 0$



b. $x + 3 > 7 - 3x$

**HABITS OF MIND****Use Structure** How does a graph show the solution to an equation? **MP.7**

**EXAMPLE 3**  **Try It! Use a Table to Solve an Equation**

3. The equation $x^2 - 4x + 1 = x - 2$ has a second solution in the interval $4 < x < 5$. Use a spreadsheet to approximate this solution to the nearest thousandth.

EXAMPLE 4  **Try It! Use Graphing Technology to Solve Equations**

4. Use graphing technology to approximate the solutions of the equation $x^2 + 2x - 1 = |x + 2| + 2$ to the nearest tenth.

HABITS OF MIND

Use Appropriate Tools What are the advantages and disadvantages of using spreadsheets and graphing technology? © MP.5

Do You UNDERSTAND?

1. **ESSENTIAL QUESTION** How can you solve an equation or inequality by graphing?

2. **Communicate Precisely** What is an advantage of solving an equation graphically by finding the points of intersection? © MP.6

3. **Error Analysis** Ben said the graph of the inequality $-x^2 + 9 > 0$ shows the solution is $x < -3$ or $x > 3$. Is Ben correct? Explain. © MP.3

Do You KNOW HOW?

4. Using the graph below, what is the solution to $-2x + 4 = -2$? How can you tell?

