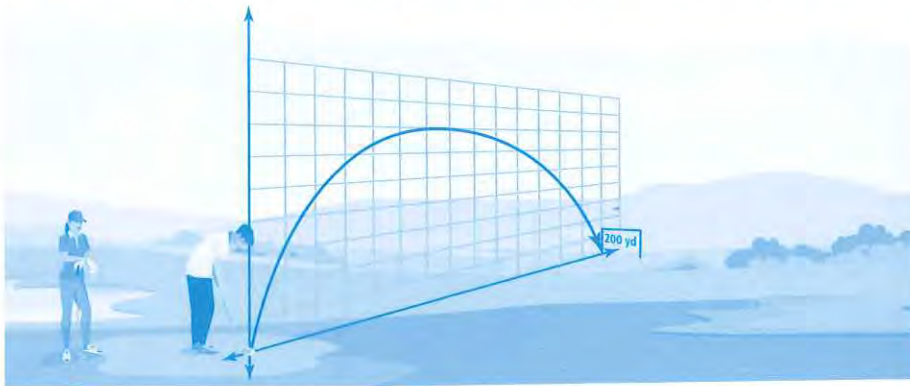


EXPLORE & REASON

The path of a golf ball hit from the ground resembles the shape of a parabola.



- A. What point represents the golf ball before it is hit off the ground?
- B. What point represents the golf ball when it lands on the ground?
- C. **Look for Relationships** Explain how the points in Part A and B are related to the ball's distance from the ground. © MP.7

HABITS OF MIND

Communicate Precisely In a table, how are independent variables different from dependent variables? Explain. © MP.6

**EXAMPLE 1**  **Try It!** Recognize Solutions of Quadratic Equations

1. What are the solutions of each equation?

a. $x^2 - 36 = 0$

b. $x^2 + 6x + 9 = 0$

EXAMPLE 2  **Try It!** Solve Quadratic Equations Using Tables

2. Find the solutions for $4x^2 + 3x - 7 = 0$ using a table. If approximating, give the answer to the nearest tenth.

HABITS OF MIND

Communicate Precisely When is it easier to solve a quadratic equation by graphing? When is it easier to solve a quadratic equation using a table? Justify your answers. © MP.6



EXAMPLE 3

**Try It! Use Approximate Solutions**

3. At the next tee, a golf ball was hit and modeled by $-16x^2 + 11x + 6 = 0$. When will the golf ball hit the ground?

HABITS OF MIND

Look for Relationships How is the graph of an absolute value function related to the graph of a quadratic function? Explain. © MP.7

Do You UNDERSTAND?

1. **ESSENTIAL QUESTION** How can graphs and tables help you solve quadratic equations?

2. **Reason** In a table that shows no exact solutions, how do you know if there are any solutions? How can you find an approximate solution? © MP.2

3. **Error Analysis** Eli says that the solutions to $x^2 + 100 = 0$ are -10 and 10 because 10^2 is 100 . What is the error that Eli made? © MP.3

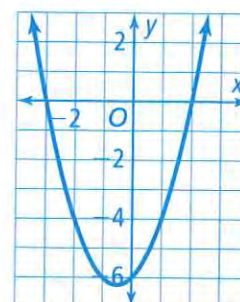
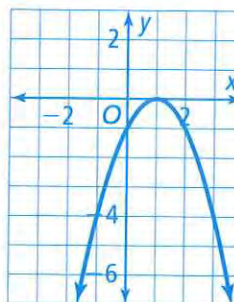
4. **Communicate Precisely** When you graph a quadratic function, the y -intercept appears to be 1 , and the x -intercepts appear to be -4 and 2.5 . Which values represent the solution(s) to the related quadratic equation of the function? How can you verify this? Explain. © MP.6

Do You KNOW HOW?

Use each graph to find the solution of the equation.

5. $-x^2 + 2x - 1 = 0$

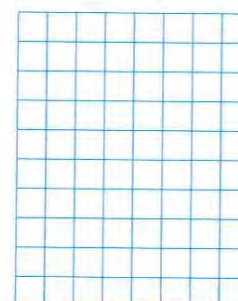
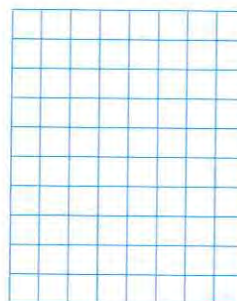
6. $x^2 + x - 6 = 0$



Solve each quadratic equation by graphing the related function.

7. $x^2 - 2x - 3 = 0$

8. $x^2 + x + 1 = 0$



Find the solutions of each equation using a table. Round approximate solutions to the nearest tenth.

9. $x^2 + 3x - 4 = 0$

10. $3x^2 - 2x + 1 = 0$

11. What are the solutions of $-5x^2 + 10x + 2 = 0$? Round approximate solutions to the nearest tenth.