

9-5
EXERCISES

Chapter 9
Quadratic Functions and Equations

Homework Help Online

Online Support for Lesson 9-5 Homework

GUIDED PRACTICE

Click a video icon to see a Lesson Tutorial Video. Click a pencil icon to practice similar problems.



VIDEO

See Example 1

Solve each equation by graphing the related function.

2. $x^2 - 4 = 0$

3. $x^2 = 16$

4. $-2x^2 - 6 = 0$

5. $-x^2 + 12x - 36 = 0$

6. $-x^2 = -9$

7. $2x^2 = 3x^2 - 2x - 8$

8. $x^2 - 6x + 9 = 0$

9. $8x = -4x^2 - 4$

10. $x^2 + 5x + 4 = 0$

11. $x^2 + 2 = 0$

12. $x^2 - 6x = 7$

13. $x^2 + 5x = -8$



PRACTICE



VIDEO

See Example 2

14. **Sports** A baseball coach uses a pitching machine to simulate pop flies during practice. The baseball is shot out of the pitching machine with a velocity of 80 feet per second. The quadratic function $y = -16x^2 + 80x$ models the height of the baseball after x seconds. How long is the baseball in the air?



PRACTICE

PRACTICE AND PROBLEM SOLVING

Click a video icon to see a Lesson Tutorial Video. Click a lightbulb icon to see a complete solution.



VIDEO

Solve each equation by graphing the related function.

15. $-x^2 + 16 = 0$

16. $3x^2 = -7$

17. $5x^2 - 12x + 10 = x^2 + 10x$

18. $x^2 + 10x + 25 = 0$

19. $-4x^2 - 24x = 36$

20. $-9x^2 + 10x - 9 = -8x$

21. $-x^2 - 1 = 0$

22. $3x^2 - 27 = 0$

23. $4x^2 - 4x + 5 = 2x^2$



VIDEO

24. **Geography** Yosemite Falls in California is made of three smaller falls. The upper fall drops 1450 feet. The height h in feet of a water droplet falling from the upper fall to the next fall is modeled by $h(t) = -16t^2 + 1450$, where t is the time in seconds after the initial fall. Estimate the time it takes for the droplet to reach the next cascade.



Tell whether each statement is always, sometimes, or never true.

25. If the graph of a quadratic function has its vertex at the origin, then the related quadratic equation has exactly one solution.



27. If the graph of a quadratic function has its vertex on the x -axis, then the related quadratic equation has exactly one solution.



SOLUTION

29. A quadratic equation in the form $ax^2 - c = 0$, where $a < 0$ and $c > 0$, has two solutions.



SOLUTION

33. **Biology** The quadratic function $y = -5x^2 + 7x$ approximates the height y of a kangaroo x seconds after it has jumped. About how long does it take the kangaroo to return to the ground?



SOLUTION

35.

x	y
-2	-6
-1	0
0	2
1	0
2	-6