

9-2
EXERCISES

Chapter 9
Quadratic Functions and Equations

Homework Help Online

Online Support for Lesson 9-2 Homework

GUIDED PRACTICE

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



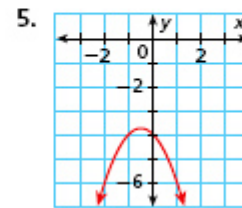
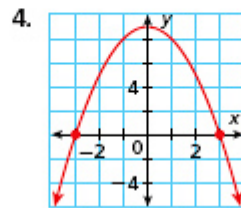
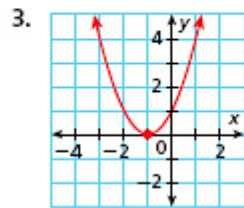
VIDEO



PRACTICE

See Example 1

Find the zeros of each quadratic function from its graph. Check your answer.



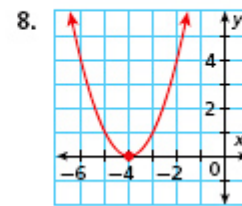
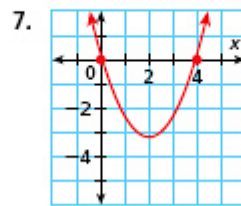
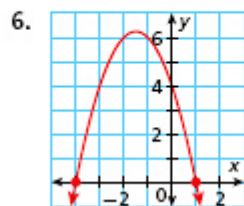
VIDEO



PRACTICE

See Example 2

Find the axis of symmetry of each parabola.





VIDEO



PRACTICE

See Example 3

For each quadratic function, find the axis of symmetry of its graph.

9. $y = x^2 + 4x - 7$

10. $y = 3x^2 - 18x + 1$

11. $y = 2x^2 + 3x - 4$

12. $y = -3x^2 + x + 5$



VIDEO



PRACTICE

See Example 4

Find the vertex of each parabola.

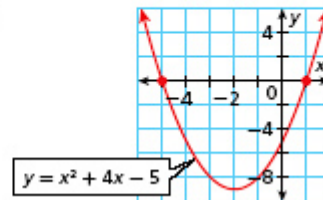
13. $y = -5x^2 + 10x + 3$

14. $y = x^2 + 4x - 7$

15. $y = \frac{1}{2}x^2 + 2x$

16. $y = -x^2 + 6x + 1$

17.





VIDEO



PRACTICE

See Example 5

18. **Archery** The height in feet above the ground of an arrow after it is shot can be modeled by $y = -16t^2 + 63t + 4$. Can the arrow pass over a tree that is 68 feet tall? Explain.

PRACTICE AND PROBLEM SOLVING

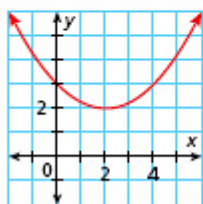
Click a video icon to see a Lesson Tutorial Video. Click a lightbulb icon to see a complete solution.



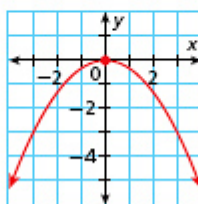
VIDEO

Find the zeros of each quadratic function from its graph. Check your answer.

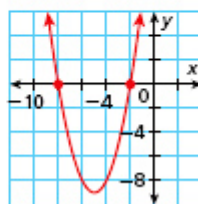
19.



20.



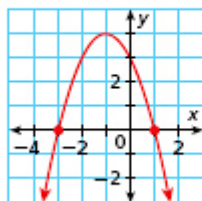
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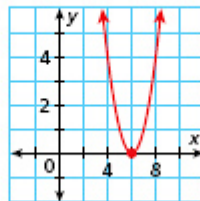
VIDEO

Find the axis of symmetry of each parabola.

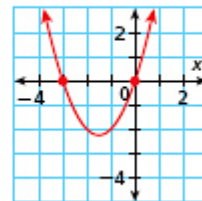
22.



23.



24.





VIDEO

For each quadratic function, find the axis of symmetry of its graph.

25. $y = x^2 + x + 2$

26. $y = 3x^2 - 2x - 6$

27. $y = \frac{1}{2}x^2 - 5x + 4$

28. $y = -2x^2 + \frac{1}{3}x - \frac{3}{4}$



VIDEO

Find the vertex of each parabola.

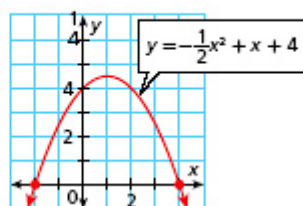
29. $y = x^2 + 7x$

30. $y = -x^2 + 8x + 16$

31. $y = -2x^2 - 8x - 3$

32. $y = -x^2 + \frac{1}{2}x + 2$

33.



VIDEO

34. **Engineering** The height in feet of the curved arch support for a pedestrian bridge over a creek can be modeled by $f(x) = -6.28x^2 + 4.5x$, where x is the distance in feet from where the arch support enters the water. If there is a flood that raises the level of the creek by 5.5 feet, will the top of the arch support be above the water? Explain.



SOLUTION

35. **Critical Thinking** What conclusion can be drawn about the axis of symmetry of any quadratic function for which $b = 0$?



SOLUTION

Graphing Calculator Tell how many zeros each quadratic function has.

37. $y = 8x^2 - 4x + 2$



SOLUTION

Graphing Calculator Tell how many zeros each quadratic function has.

37. $y = 8x^2 - 4x + 2$



SOLUTION

39. $\frac{1}{4}x^2 - 7x - 12 = y - 4$