

2. **OPEN ENDED** Draw two different parabolas.
3. Explain how the axis of symmetry can help you graph a quadratic function.

Guided Practice Use a table of values to graph each function.

4. $y = x^2 - 5$

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

Write the equation of the axis of symmetry, and find the coordinates of the vertex of the graph of each function. Identify the vertex as a maximum or minimum. Then graph the function.

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

7. $y = -x^2 + 5x + 6$

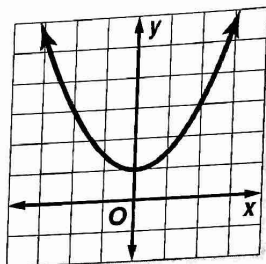
8. $y = -(x - 2)^2 + 1$

9. Which is the graph of $y = -\frac{1}{2}x^2 + 1$?

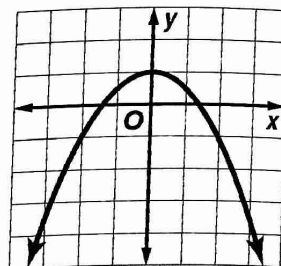
Standardized Test Practice

A B C D

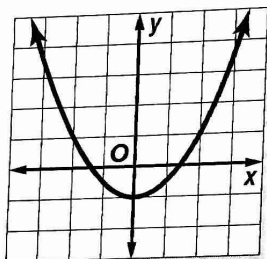
(A)



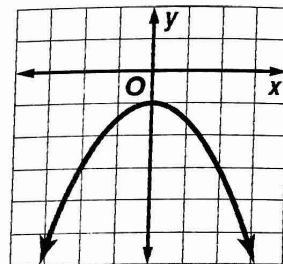
(B)



(C)



(D)



Practice and Apply

Homework Help

For Exercises	See Examples
1-15	1, 2
16-49	3
50-53	4

Extra Practice
See page 841.

Use a table of values to graph each function.

10. $y = x^2 - 3$

11. $y = -x^2 + 7$

12. $y = x^2 - 2x - 8$

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

14. $y = -3x^2 - 6x + 4$

15. $y = -3x^2 + 6x + 1$

16. What is the equation of the axis of symmetry of the graph of $y = -3x^2 + 2x - 5$?

17. Find the equation of the axis of symmetry of the graph of $y = 4x^2 - 5x + 16$.

Write the equation of the axis of symmetry, and find the coordinates of the vertex of the graph of each function. Identify the vertex as a maximum or minimum. Then graph the function.

18. $y = 4x^2$

19. $y = -2x^2$

20. $y = x^2 + 2$

21. $y = -x^2 + 5$

22. $y = -x^2 + 2x + 3$

23. $y = -x^2 - 6x + 15$

24. $y = x^2 - 14x + 13$

25. $y = x^2 + 2x + 18$

26. $y = 2x^2 + 12x - 11$

27. $y = 3x^2 - 6x + 4$

28. $y = 5 + 16x - 2x^2$

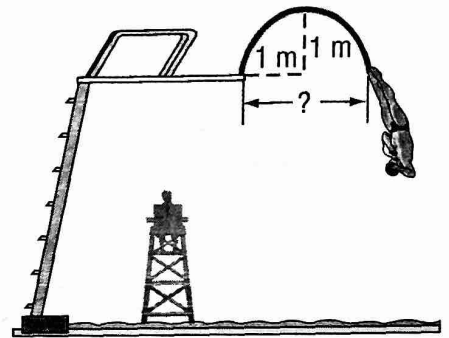
29. $y = 9 - 8x + 2x^2$

30. $y = 3(x + 1)^2 - 20$ 31. $y = -2(x - 4)^2 - 3$ 32. $y + 2 = x^2 - 10x + 25$
 33. $y + 1 = 3x^2 + 12x + 12$ 34. $y - 5 = \frac{1}{3}(x + 2)^2$ 35. $y + 1 = \frac{2}{3}(x + 1)^2$

36. The vertex of a parabola is at $(-4, -3)$. If one x -intercept is -11 , what is the other x -intercept?

37. What is the equation of the axis of symmetry of a parabola if its x -intercepts are -6 and 4 ?

38. **SPORTS** A diver follows a path that is in the shape of a parabola. Suppose the diver's foot reaches 1 meter above the height of the diving board at the maximum height of the dive. At that time, the diver's foot is also 1 meter horizontally from the edge of the diving board. What is the distance of the diver's foot from the diving board as the diver descends past the diving board? Explain.

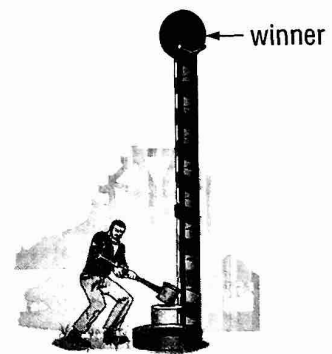


ENTERTAINMENT For Exercises 39 and 40, use the following information.

A carnival game involves striking a lever that forces a weight up a tube. If the weight reaches 20 feet to ring the bell, the contestant wins a prize. The equation $h = -16t^2 + 32t + 3$ gives the height of the weight if the initial velocity is 32 feet per second.

39. Find the maximum height of the weight.

40. Will a prize be won?



PETS For Exercises 41–43, use the following information.

Miriam has 40 meters of fencing to build a pen for her dog.

41. Use the diagram at the right to write an equation for the area A of the pen.

