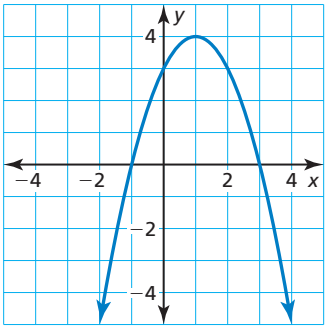
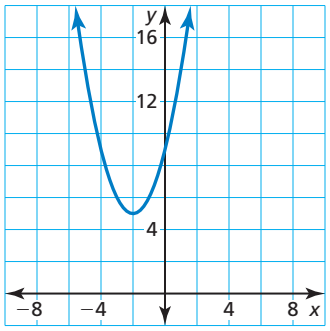
8.1–8.3 Quiz

Identify characteristics of the quadratic function and its graph. *(Section 8.1)*

1.



2.



Graph the function. Compare the graph to the graph of $f(x) = x^2$. *(Section 8.1 and Section 8.2)*

3. $h(x) = -x^2$

4. $p(x) = 2x^2 + 2$

5. $r(x) = 4x^2 - 16$

6. $b(x) = 8x^2$

7. $g(x) = \frac{2}{5}x^2$

8. $m(x) = -\frac{1}{2}x^2 - 4$

Describe the transformation from the graph of f to the graph of g. Then graph f and g in the same coordinate plane. Write an equation that represents g in terms of x. *(Section 8.2)*

9. $f(x) = 2x^2 + 1$; $g(x) = f(x) + 2$

10. $f(x) = -3x^2 + 12$; $g(x) = f(x) - 9$

11. $f(x) = \frac{1}{2}x^2 - 2$; $g(x) = f(x) - 6$

12. $f(x) = 5x^2 - 3$; $g(x) = f(x) + 1$

Graph the function. Describe the domain and range. *(Section 8.3)*

13. $f(x) = -4x^2 - 4x + 7$

14. $f(x) = 2x^2 + 12x + 5$

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

16. $y = -3x^2 + 6x + 9$

Tell whether the function has a minimum value or a maximum value. Then find the value. *(Section 8.3)*

17. $f(x) = 5x^2 + 10x - 3$

18. $f(x) = -\frac{1}{2}x^2 + 2x + 16$

19. $y = -x^2 + 4x + 12$

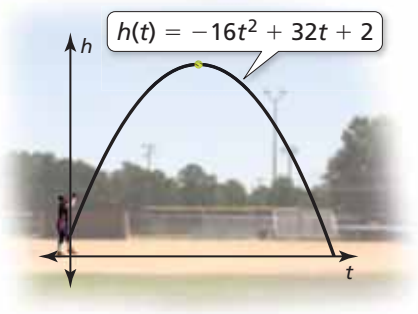
20. $y = 2x^2 + 8x + 3$

21. The distance y (in feet) that a coconut falls after t seconds is given by the function $y = 16t^2$. Use a graph to determine how many seconds it takes for the coconut to fall 64 feet. *(Section 8.1)*

22. The function $y = -16t^2 + 25$ represents the height y (in feet) of a pinecone t seconds after falling from a tree. *(Section 8.2)*

a. After how many seconds does the pinecone hit the ground?

b. A second pinecone falls from a height of 36 feet. Which pinecone hits the ground in the least amount of time? Explain.



23. The function shown models the height (in feet) of a softball t seconds after it is pitched in an underhand motion. Describe the domain and range. Find the maximum height of the softball. *(Section 8.3)*