NAME _____ DATE _____ PERIOD _____

9-2 Practice

Transformations of Quadratic Functions

Describe how the graph of each function is related to the graph of $f(x) = x^2$.

1. $g(x) = (10 + x)^2$

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

3. $g(x) = 9 - x^2$

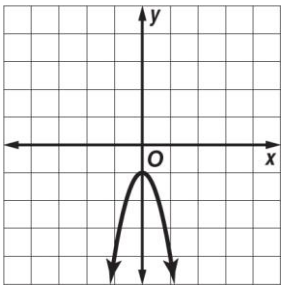
4. $g(x) = 2x^2 + 2$

5. $g(x) = -\frac{3}{4}x^2 - \frac{1}{2}$

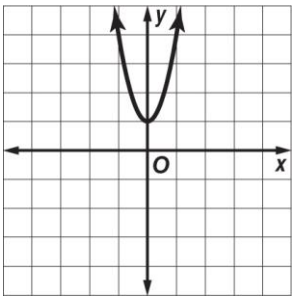
6. $g(x) = -3(x + 4)^2$

Match each equation to its graph.

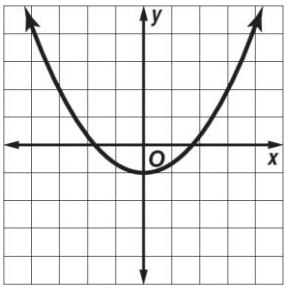
A.



B.



C.



7. $y = -3x^2 - 1$

8. $y = \frac{1}{3}x^2 - 1$

9. $y = 3x^2 + 1$

List the functions in order from the most vertically stretched to the least vertically stretched graph.

10. $f(x) = 3x^2$, $g(x) = \frac{1}{2}x^2$, $h(x) = -2x^2$

11. $f(x) = \frac{1}{2}x^2$, $g(x) = -\frac{1}{6}x^2$, $h(x) = 4x^2$

12. PARACHUTING Two parachutists jump at the same time from two different planes as part of an aerial show. The height h_1 of the first parachutist in feet after t seconds is modeled by the function $h_1 = -16t^2 + 5000$. The height h_2 of the second parachutist in feet after t seconds is modeled by the function $h_2 = -16t^2 + 4000$.

a. What is the parent function of the two functions given?

b. Describe the transformations needed to obtain the graph of h_1 from the parent function.

c. Which parachutist will reach the ground first?