Name_____ Date _____

3.1 Practice A

In Exercises 1–6, graph the function. Compare the graph to the graph of $f(x) = x^2$.

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

2. $h(x) = 1.5x^2$

3. $j(x) = \frac{1}{3}x^2$

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

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

6. $n(x) = -0.5x^2$

In Exercises 7–9, use a graphing calculator to graph the function. Compare the graph to the graph of $y = -5x^2$.

7. $y = 5x^2$

8. $y = -0.5x^2$

9. $y = -0.05x^2$

10. The arch support of a bridge can be modeled by $y = -0.00125x^2$, where x and y are measured in feet.

a. The width of the arch is 800 feet. Describe the domain of the function. Explain.

b. Graph the function using the domain in part (a). Find the height of the arch.

11. Is the y-intercept of the graph of $y = ax^2$ always 0? Explain.

In Exercises 12–15, determine whether the statement is *always*, *sometimes*, or *never* true. Explain your reasoning.

12. The graph of $f(x) = ax^2$ is narrower than the graph of $g(x) = dx^2$ when $d = -a$.

13. The graph of $f(x) = ax^2$ opens in the same direction as the graph of $g(x) = dx^2$ when $d = |a|$.

14. The graph of $f(x) = (ax)^2$ opens in the same direction as the graph of $g(x) = dx^2$ when $a^2 = d$.

15. The graph of $f(x) = (ax)^2$ is narrower than the graph of $g(x) = dx^2$ when $0 < a^2 < d$.