Name _____ Date _____

3.1 Practice B

In Exercises 1–6, graph the function. Compare the graph to the graph of $f(x) = x^2$.
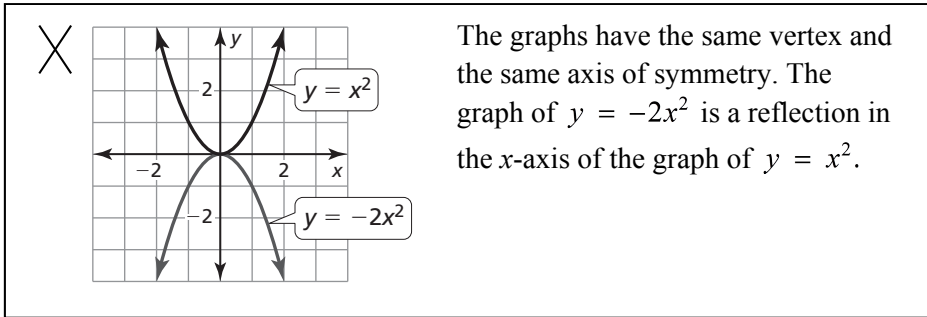
1. $g(x) = 7x^2$

2. $h(x) = 0.25x^2$

3. $j(x) = \dfrac{7}{2}x^2$

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

5. $k(x) = -\dfrac{3}{4}x^2$

6. $n(x) = -0.4x^2$

7. Describe and correct the error in graphing and comparing $y = x^2$ and $y = -2x^2$.

The graphs have the same vertex and the same axis of symmetry. The graph of $y = -2x^2$ is a reflection in the x-axis of the graph of $y = x^2$.

8. The arch support of a bridge can be modeled by $y = -\dfrac{1}{300}x^2$, where x and y are measured in feet.

   a. The width of the arch is 900 feet. Describe the domain of the function. Explain.

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

9. A parabola opens down and passes through the points $(-3, 4)$ and $(1, -2)$. How do you know that $(-3, 4)$ could be the vertex?

10. Given the parabola $f(x) = ax^2$.

   a. Find the value of a when the graph passes through $(3, -1)$ and $a < 0$.

   b. Find the value of a when the graph passes through $(3, -1)$ and $a > 0$. Explain.