Name _____ Date _____

3.7 Practice A

In Exercises 1 and 2, describe the transformation of *f* represented by *g*. Then graph each function.

1. $f(x) = x^3,\ g(x) = x^3 - 2$

2. $f(x) = x^3,\ g(x) = (x + 3)^3$

In Exercises 3–6, describe the transformation of *f* represented by *g*. Then graph each function.

3. $f(x) = x^4,\ g(x) = -5x^4$

4. $f(x) = x^3,\ g(x) = 4x^3 - 3$

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

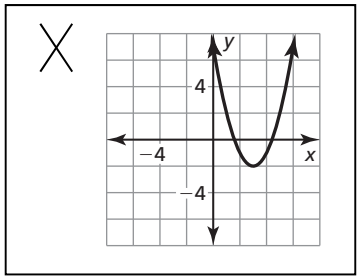
6. $f(x) = x^4,\ g(x) = \frac{1}{2}(x - 2)^4$

In Exercises 7 and 8, write a rule for *g* and then graph each function. Describe the graph of *g* as a transformation of the graph of *f*.

7. $f(x) = x^3 + 2,\ g(x) = f(x - 1)$

8. $f(x) = x^4 - 3x + 1,\ g(x) = 2f(x)$

9. Describe and correct the error in graphing the function $g(x) = (x - 3)^2 + 2$.



In Exercises 10 and 11, write a rule for *g* that represents the indicated transformations of the graph of *f*.

10. $f(x) = x^3 + 5$; translation 2 units right, followed by a reflection in the y-axis

11. $f(x) = x^4 - 3x + 1$; vertical shrink by a factor of $\frac{1}{3}$, followed by a translation 2 units down

12. The volume V (in cubic yards) of a rectangular box is given by $V = x^3 + 4x + 3$.

a. The function $W(x) = V(3x)$ gives the volume (in cubic feet) of the box when x is measured in yards. Write a rule for W.

b. The function $Z(x) = W(12x)$ gives the volume (in cubic inches) of the box when x is measured in yards. Write a rule for Z.