Name _____ Date _____

2.5 Practice A

In Exercises 1–6, describe the transformation of $f(x) = x^2$ represented by g. Then graph each function.

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

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

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

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

5. $g(x) = (x - 5)^2$

6. $g(x) = (x + 2)^2 - 1$

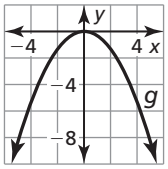
In Exercises 7–9, describe the transformation of $f(x) = x^2$ represented by g. Then graph each function.

7. $g(x) = -2x^2$

8. $g(x) = (-2x)^2$

9. $g(x) = \frac{1}{4}x^2$

10. Describe and correct the error in analyzing the graph of $f(x) = -\frac{1}{3}x^2$.



The graph of g is a reflection in the x-axis, followed by a vertical stretch by a factor of $\frac{1}{3}$ of the graph of the parent quadratic function.

In Exercises 11 and 12, describe the transformation of the graph of the parent quadratic function. Then identify the vertex.

11. $f(x) = 2(x + 3)^2 + 2$

12. $f(x) = -5x^2 - 1$

In Exercises 13 and 14, write a rule for g described by the transformations of the graph of f. Then identify the vertex.

13. $f(x) = x^2$; vertical stretch by a factor of 3 and a reflection in the x-axis, followed by a translation 3 units down

14. $f(x) = 4x^2 + 5$; horizontal stretch by a factor of 2 and a translation 2 units up, followed by a reflection in the x-axis

15. Let the graph of g be a translation 4 units down and 3 units right, followed by a horizontal shrink by a factor of $\frac{1}{2}$ of the graph of $f(x) = x^2$.

a. Identify the values of a, h, and k. Write the transformed function in vertex form.

b. Suppose the horizontal shrink was performed first, followed by the translations. Identify the values of a, h, and k, and write the transformed function in vertex form.