Name_____ Date _____

2.5 Practice B

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

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

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

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

4. $g(x) = (x - 1)^2 + 5$

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

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

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

7. $g(x) = -\left(\frac{1}{2}x\right)^2$

8. $g(x) = \frac{1}{3}x^2 + 2$

9. $g(x) = \frac{1}{3}(x + 1)^2$

In Exercises 10 and 11, describe the transformation of the graph of the parent quadratic function. Then identify the vertex.

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

11. $f(x) = \frac{1}{3}(x - 2)^2 + 1$

In Exercises 12 and 13, write a rule for g described by the transformations of the graph of f. Then identify the vertex.

12. $f(x) = x^2$; vertical shrink by a factor of $\frac{1}{2}$ and a reflection in the y-axis, followed by a translation 2 units left

13. $f(x) = (x + 4)^2 + 2$; horizontal shrink by a factor of $\frac{1}{3}$ and a translation 2 units up, followed by a reflection in the x-axis

14. Justify each step in writing a function g based on the transformations of $f(x) = 4x^2 - 3x$.

translation 3 units up followed by a reflection in the y-axis

$h(x) = f(x) + 3$	
$= 4x^2 - 3x + 3$	
$g(x) = h(-x)$	
$= 4x^2 + 3x + 3$	