Name: _____ Date: _____

Section 1.3 Extra Practice

1. Match the mapping with the correct transformation.

Mapping	**Transformation**
a) $(x, y) \rightarrow \left(\frac{1}{4}x, y\right)$	**A** vertical stretch by a factor of 4
b) $(x, y) \rightarrow (x, y + 4)$	**B** horizontal stretch by a factor of $\frac{1}{4}$
c) $(x, y) \rightarrow (x + 4, y)$	**C** vertical translation up 4 units
d) $(x, y) \rightarrow (x, 4y)$	**D** horizontal translation right 4 units

2. Write the equation for each transformation of $y = x^2$ in the form $y = af(b(x - h)) + k$.

a) a vertical stretch by a factor of 3, reflected in the y-axis, and translated 3 units left and 2 units down

b) a horizontal stretch by a factor of 2, reflected in the x-axis, and translated 7 units up

c) a horizontal stretch by a factor of $\frac{1}{4}$, translated 5 units right and 1 unit down

d) a vertical stretch by a factor of $\frac{1}{3}$, a horizontal stretch by a factor of $\frac{1}{2}$, and reflected in the x-axis
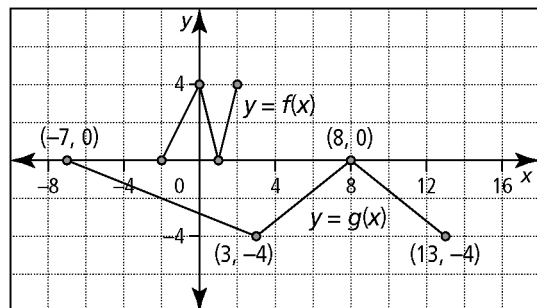
3. Rewrite each of the following equations in the form $y = af(b(x - h))$.

a) $y = 2f(-x - 6)$
b) $-y = f(2x + 10)$
c) $-2y = f(-3x + 12)$
d) $\frac{1}{4}y = f(9 - x)$

4. Describe the combination of transformations that must be applied to the function $y = f(x)$ in order to obtain each transformed function.

a) $y = 2f(5x - 15)$
b) $-4y = f(7 - x)$
c) $y = f(3x + 12)$

5. The graph of the function $y = g(x)$ represents a transformation of the graph of $y = f(x)$. Determine the equation of $g(x)$ in the form $y = af(b(x - h)) + k$.

6. The key point $(-18, 12)$ is on the graph of $y = f(x)$. What is its image point under each transformation of the graph of $f(x)$?

a) $y = f(x - 6) - 8$
b) $y = 2f(6x)$
c) $y - 4 = -3f(x + 5)$
d) $y = -f(0.5x)$

7. If the x-intercept of the graph of $y = f(x)$ is $(a, 0)$ and the y-intercept is $(0, b)$, determine the x-intercept and y-intercept after the following transformations of the graph.

a) $y = 3f(x - 7) + 2$
b) $y = f(-0.25x) - 7$
c) $y + 3 = 4f(x + 10)$
d) $y = -f(2x) - 6$