Adv Alg

Name: _____
Date: _____Pd____

GENERALIZING TRANSFORMATIONS

1. Describe the transformation of the following functions.

   a. f(x) + 3 _____

   b. g(x + 3) _____

   c. h(x -2) – 1 _____

   d. w(2x) _____

   e. –f(x) + 1 _____

   f. ½ k(x -2) + 1 _____

   _____

   g. h(-x) + 5 _____

   h. -2g(x + 3) + 1 _____

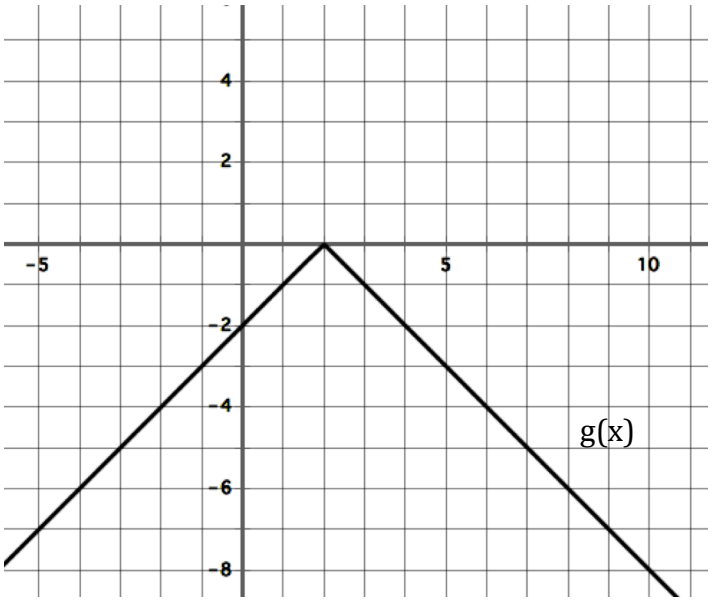
   i. –j(¾ x) _____

   j. -3k(-2x) + 2 _____

   _____

2. For the following graphs, sketch the transformations indicated. Then, write the equation of the transformed functions using the **function notation** given in the graph.

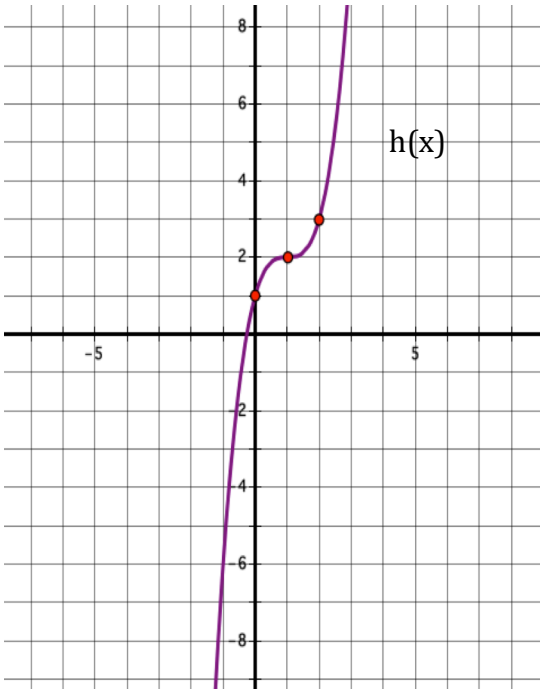
a.



Shift g(x) 2 units left, reflect about the x-axis, and shift 3 units up.

Equation: _____

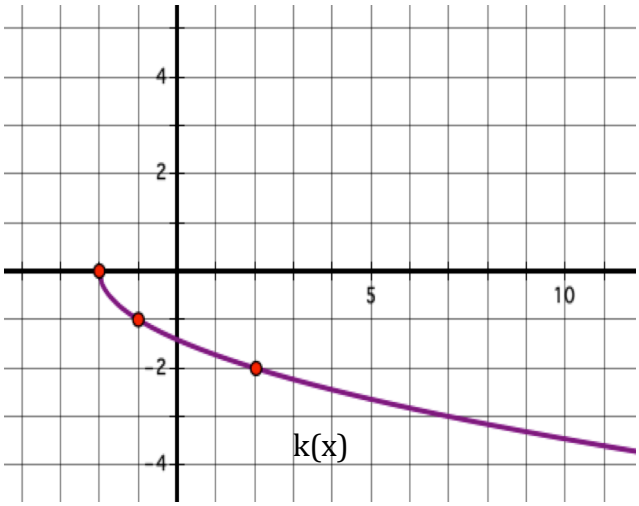
b.



Shift h(x) 3 units to the left, reflect about the x-axis, and shift 4 units down.

Equation: _____

c.



Shift k(x) 2 units to the right, reflect about the x-axis, and shift one unit up.

Equation: _____

3. Write the equations of the transformed functions described below.

   a. The graph of $f(x) = |x|$ is shifted to the left by 4 units, stretched vertically by a factor of 2, reflected about the x-axis, and shifted up by 1 unit.

      g(x) = _____

   b. The graph of $g(x) = 2^x$ is shifted to the right by 2 units, compressed vertically by a factor of ⅕, and shifted down by 1 unit.

      h(x) = _____

   c. The graph of $h(x) = \frac{1}{x}$, is shifted to the right by 5 units, stretched vertically by a factor of 3, reflected about the x-axis, and shifted down by 2 units.

      j(x) = _____

4. Write the equation of the transformed graphs.

   a. The graph of $y = f(x - 2) + 1$ is shifted 3 units to the left and 3 units down.

   b. The graph of $y = g(x + 3) - 2$ is shifted 1 unit to the left and 1 unit down.

   c. The graph of $y = h(x + 1) + 2$ is shifted 1 unit to the right, 4 units down, stretched vertically by a factor of 3, and reflected about the x-axis.

   d. The graph of $y = -k(x) - 2$ is reflected about the y-axis, reflected about the x-axis, and shifted up 5 units.