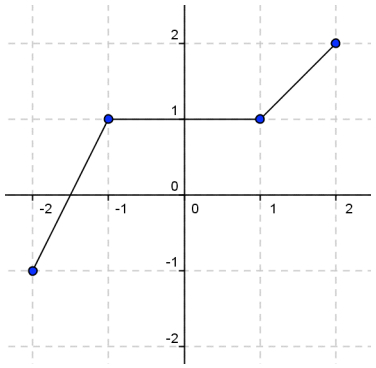
Integrated Algebra 2
Unit: Transformations
Vertical and Horizontal Shifting Worksheet #3

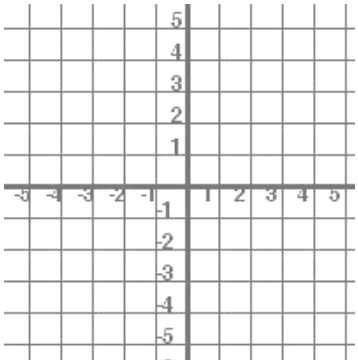
Name: _____ **Date:** _____

1. Use the graph of the elementary, or arbitrary, function $y = h(x)$ below.

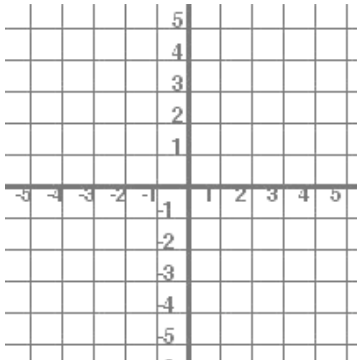


   (i) State the transformation(s).
   (ii) Sketch an accurate graph of the transformed function. Please sketch each graph on its own coordinate plane.

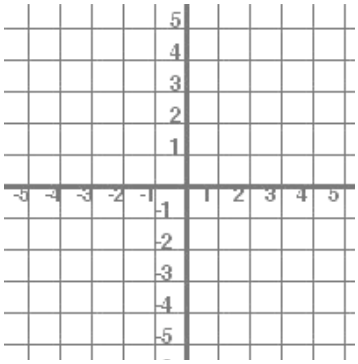
a. $y = h(x) + 2$



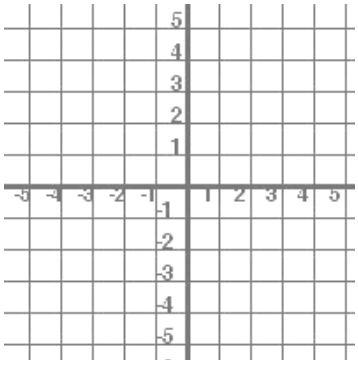
b. $y = h(x + 2)$



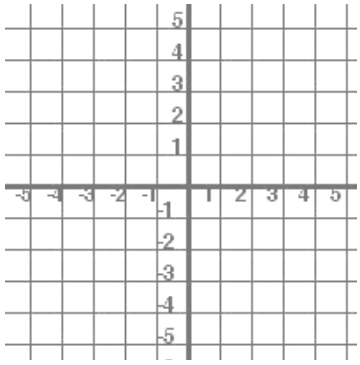
c. $y = h(x + 2) + 2$



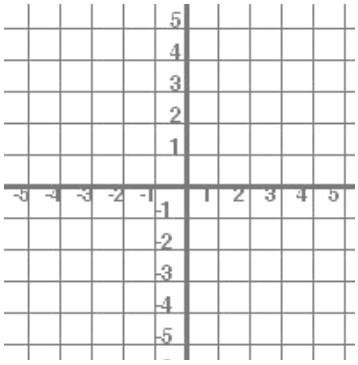
d. $y = h(x) - 3$



e. $y = h(x - 3)$



f. $y = h(x + 2) - 3$



2. If the point (-7 , 3) lies on the graph of an elementary function $y = g(x)$, find a point that lies on the graph on the function below.

   a. $y = g(x - 3) - 8$

   b. $y = g(x + 4) - 9$

   c. $y = g(x - \sqrt{3}) + 11.5$

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3. Using the elementary function $y = x^2 - 2x - 3$, create a new equation that will transform the given equation in the manner indicated.

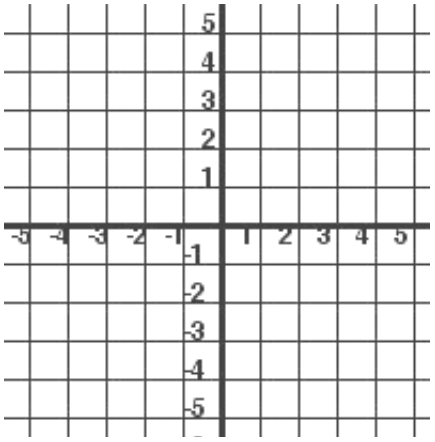
   a. Right 7 units

   b. Down 3 units

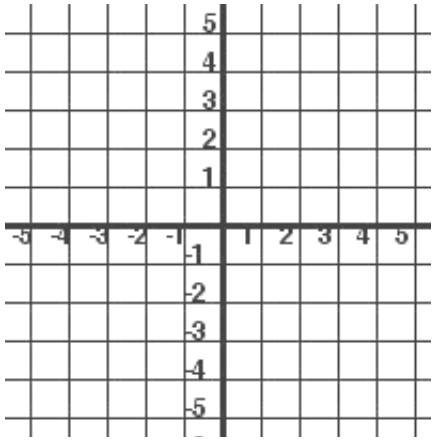
   c. Left 4 units, Up 8 units

4. For each of the following:
   (i) Identify the parent function.
   (ii) Identify the transformation(s) on the parent function.
   (iii) Sketch an accurate graph of the transformed function.
   (iv) State the domain and range of the transformed function.

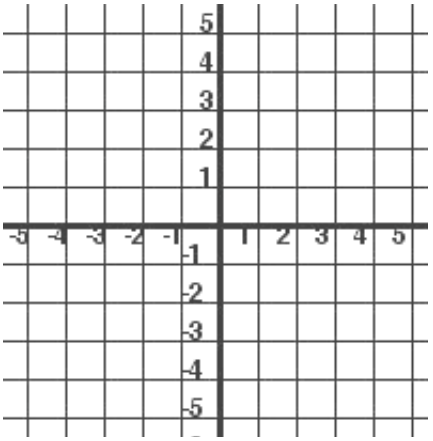
a. $y = x^2 - 3$



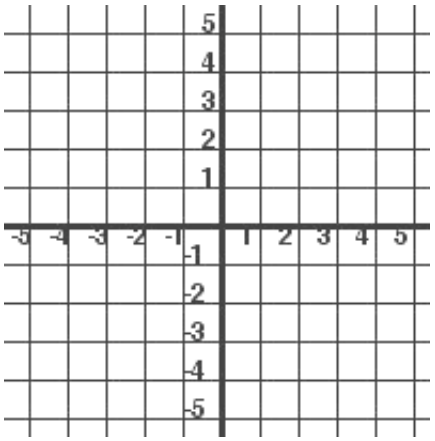
b. $y = |x + 2|$



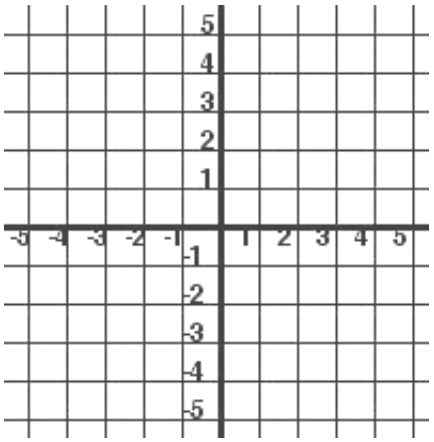
c. $y = (x - 1)^3 + 2$



d. $f(x) = -4 + \sqrt{x}$



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



f. $h(x) = 2^{x+3} - 3$