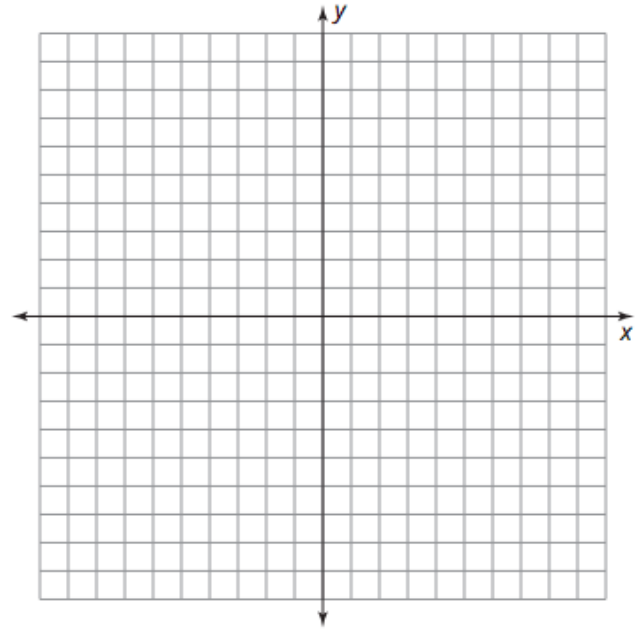**Module 1, Topic 2 DCA Review (A.APR.B)**

1) Consider the function $f(x) = x^2 - 1$. Dilate $f(x)$ by $x + 3$ to create a new function of higher degree.

   a) Write the dilation of $f(x)$ as $g(x)$. [Note: You   **b)** Sketch the graph of $g(x)$.
   may leave this one in factored form}

   c) Identify the zeros of the graph of the
   function of $g(x)$.

2) Describe the end behavior of each function.
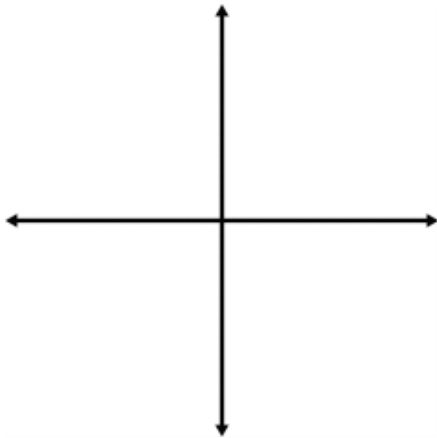**a)** $r(x) = -5x^{10} + 2x^6 - 12x - 13$ **b)** $h(x) = x^7 + 4x^5 - 9x^3 + 2$

3) $f(x) = x^2$ has been transformed into $g(x) = -2(x + 4)^2 + 8$. Describe the transformations that map $f(x)$ onto $g(x)$.

4) Sketch the basic shape of each function.
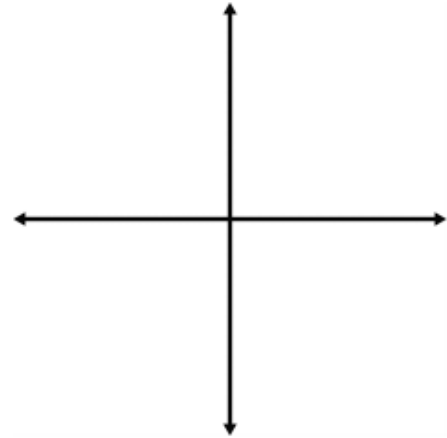
a)
- Polynomial with degree 5,
- a is positive
- one zero has a multiplicity of one, and two zeros have a multiplicity of two.

b)
- Polynomial with degree 4,
- a is negative,
- each zero has a multiplicity of one.

Exemplary – If you are already Meeting on the rest of the assessment.

5)

a) Write a new function, g(x), that is a product of the functions shown. [Note: You may <u>not</u> leave this one in factored form]. Show your work!

b) Sketch the graph of g(x).