**3.4 Activity**

1. Describe what happens to the graph of  in the following situations.
   1. x is replaced with .
   2. x is replaced with –x.
   3. x is replaced with 3x
   4. y is replaced with .
2. Describe the transformations of the absolute value function. Use the example to help you with b.  
   Example:   
   Solution: Solve the equation for y, then describe the transformation.  
     
   Multiplying both sides by 2 gives us   
     
   Subtracting 5 from both sides gives us   
     
   We can now describe the translations we see in the resulting equation. This equation shows a vertical stretch by 2, a reflection across the x-axis, a movement left of 1 unit, and a movement down of 5 units.
   1. 
   2. 
3. Assume that the parabola is translated so that its vertex is (5, -4).
   1. If the parabola is stretched vertically by a factor of 2, what are the coordinates of the point on the parabola 1 unit to the right of the vertex?
   2. If the parabola is stretched horizontally instead, by a factor of 3, what are the coordinates of the points of the parabola 1 unit above the vertex?
   3. If the parabola is stretched vertically by a factor of 2 and horizontally by a factor of 3, name two points on the new parabola that are symmetric with respect to the vertex.