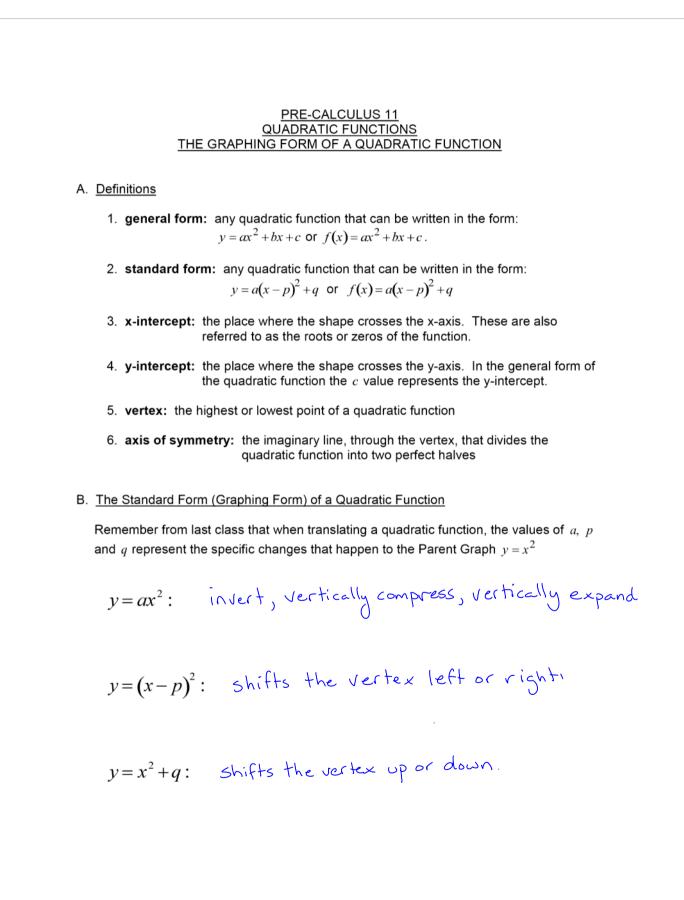
## The Graphing Form of a Quadratic Function

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In Standard Form (Graphing Form) of the quadratic function  $y = a(x-p)^2 + q$ , the values still represent the same changes to the Parent Graph  $y = x^2$ .

Additionally, the values of  $\left( p,q
ight)$  form the coordinates of the vertex of the parabola.

## C. Examples

1) Determine the coordinates of the vertex for the following quadratic functions.

a) 
$$y = (x-4)^2 - 1$$
  
 $Q = 1$   
 $p = 4$   
 $q = -1$   
b)  $y = 2x^2 + 6$   
 $Q = 2$   
 $p = 0$   
 $q = 6$   
c)  $y = -\frac{1}{2}(x+7)^2$   
 $Q = -\frac{1}{3}$   
 $p = -7$   
 $q = 0$   
d)  $y = -0.4(x+2.8)^2 + 4.9$   
 $Q = -0.4$   
 $p = -3.8$   
 $Q = 4.9$   
Vertex (-3.8)  
Vertex (-3.8)

2) Describe the transformation that is applied to the Parent Graph  $y = x^2$ , to get the following function.

a) 
$$y = -2x^2 - 3$$
  
 $Q = -2$   
 $p = 0$   
 $q = -3$   
b)  $y = \frac{1}{4}(x+1)^2 + 5$   
 $Q = \frac{1}{4}$   
 $p = -1$   
 $q = 5$   
- inverted & Vertical expansion  
- vertex moves to  $(0_3 - 3)$   
- vertex moves to  $(0_3 - 3)$   
- vertex moves to  $(-1_3 - 5)$ 

Assignment: Pg. 284 #2 – 6a