**Notes:** Key Elements of Standard Form Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Quadratic Functions:** Sketch & Learn$f\left(x\right)= Ax^{2}+Bx+C$

**C ? Use a Calculator to sketch and describe**

$f\left(x\right)= x^{2}$$f\left(x\right)= x^{2}+3$$f\left(x\right)= x^{2}-5$

 **Without a Calculator sketch Check with a calculator 😊**

 $f\left(x\right)= x^{2}+1$$f\left(x\right)= x^{2}-8$

C? How does “C” transform the Parabola?

 When C is greater than 0 (positive): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 When C is less than 0 (negative): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 C is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**A ? Use a Calculator to sketch and describe**

$f\left(x\right)= x^{2}$$f\left(x\right)= 2x^{2}$ $f\left(x\right)= -2x^{2} f\left(x\right)= \frac{1}{3}x^{2}$ $f\left(x\right)= -.4x^{2}$

 **Without a Calculator sketch Check with a calculator 😊**

 $f\left(x\right)= 4x^{2}$$f\left(x\right)= .2x^{2}$$f\left(x\right)= -4x^{2}$$f\left(x\right)= -\frac{1}{2}x^{2}$

A? How does “A” transform the Parabola?

When A is greater than 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When A is between 0 and 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

When A is negative:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Quadratic Functions:** Sketch & Learn$f\left(x\right)= Ax^{2}+Bx+C$

**B ? works with A** to create the **Axis of symmetry (AOS) “ vertical (x=) line parabola reflects over”**

Axis of Symmetry

 $x=\frac{-b}{2a}$

**Use a Calculator to Sketch Find the A.O.S. What does the AOS go through?**

$y= 2x^{2}+4x-3$$x=$

**Substitute the A.O.S. in for x and find the y value? What do you notice? What is the Vertex?**

**Use a Calculator to Sketch Find the A.O.S. What does the A.O.S. go through?**

$y= -2x^{2}+8x+5$$x=$

**Substitute the A.O.S. in for x and find the y value? What do you notice? What is the Vertex?**