Name: _____   Date: _____   Period: _____

A quadratic equation in the form $y = ax^2 + bx + c$ can be graphed using a table of (x, y) values. If a, b, and c are real numbers and $a \neq 0$, the graph is a **parabola**.

The following steps are to be followed when using the graphing calculator to graph a parabola.

1. Make sure your equation is in "y =" format.

2. Enter the equation into "f(x) =" window on calculator and press ENTER.

3. Press ctrl T which is the Table key. A table of (x, y) values is displayed. Use the up and down keys on the calculator to adjust the values you see.

| If the interval is given, just use those numbers from the calculator.	If the interval is **not** given, find the x-value of the **turning point** by using the formula for the **axis of symmetry**. This will provide the x-value for the **CENTER** of your table.
Example: Graph $y = x^2 - 2x$ for $-2 \leq x \leq 4$ Since the interval for x is given as a compound inequality, the x-values you use are -2 through 4.	**Example:** Graph $y = x^2 - 6x + 8$ Since no further information is given, you must use the formula $x = \frac{-b}{2a}$ to find the x-value for the middle of your table. $$x = \frac{-b}{2a} = \frac{-(-6)}{2(1)} = \frac{6}{2} = 3$$ x = 3 is your AOS, which is also the x-value of your vertex

Left example table:

x	y
-2	
-1	
0	
1	
2	
3	
4	

Right example table:

x	y
3	

4. On your paper, list the table of values for the corresponding interval. If no interval, make sure to list at least 3 points above the turning point and 3 points below the turning point.

5. Plot the points and connect them as a smooth curve, not a "V". Use the calculator to view what the parabola should look like to check your graph.

6. Label your parabola with the equation. Draw and label the axis of symmetry (vertical line through the vertex, x = #).

Three points **ABOVE**

TURNING POINT
x-value gives you the # for your
axis of symmetry

Three points **BELOW**

x	y
****	
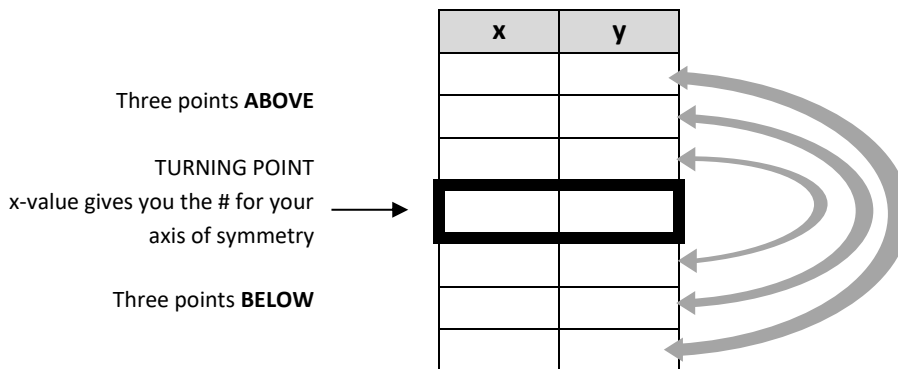
1. Graph the quadratic equation $y = x^2 + 2x$, using all integer values of x where $-4 \leq x \leq 2$.
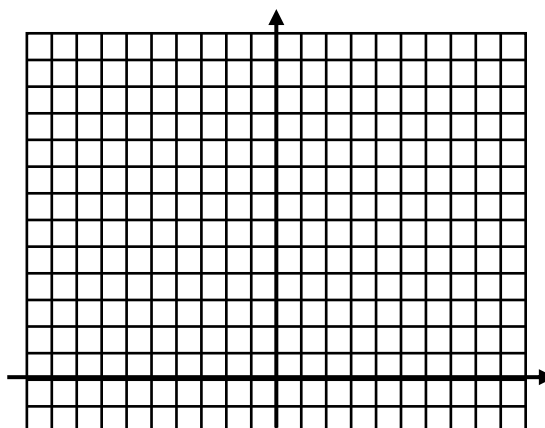
Given interval for x

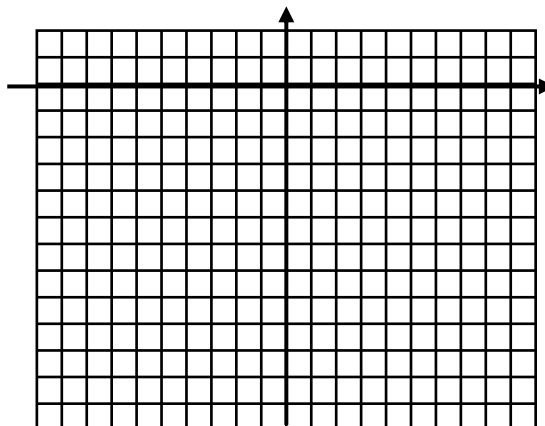| x	y
-4	
-3	
-2	
-1	
0	
1	
2	

Draw and label the axis of symmetry.   What are the coordinates of the vertex?

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2. Graph the quadratic equation $y = -x^2 - 1$ for all integer values of x where $-3 \leq x \leq 3$.

x	y
-3	
-2	
-1	
0	
1	
2	
3	

Draw and label the axis of symmetry.   What are the coordinates of the vertex?

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3. Graph the quadratic equation $y = x^2 - 4x - 5$. (No interval given)

x	y