Quadratics – Day 3                      Name _____

Notes                                    Date _____ Per. _____

You can use the values in a table representing a quadratic function to find solutions to a quadratic equation.

- Identify the points in the table that have y-values of 0.
- The x-values of those points are the solutions to the equation.

The table below models the function $f(x) = 2x^2 - 2x - 12$.  Find solutions to the quadratic equation $2x^2 - 2x - 12 = 0$.

| x | y |
|---|---|
| –3 | 12 |
| –2 | 0 |
| –1 | –8 |
| 0 | –12 |
| 1 | –12 |
| 2 | –8 |
| 3 | 0 |
| 4 | 12 |

The roots of the function are the x-coordinates of the points on the graph where the y-coordinate is 0.  Look for rows in the table where y = 0.  Two points in the table have a y-coordinate of 0:  (–2, 0) and (3, 0).  The o-coordinates of these points are –2 and 3.  The zeros of the function, or the roots of the equation, are –2 and 3.  Both –2 and 3 are solutions.

Graph the quadratic function in $y_1$ of your calculator.  Then complete the table and sketch the graph of the function.

1.    $f(x) = x^2$

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
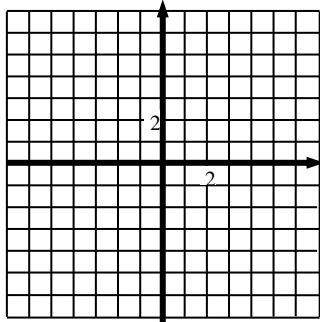
Vertex _____ Maximum or Minimum point? _____
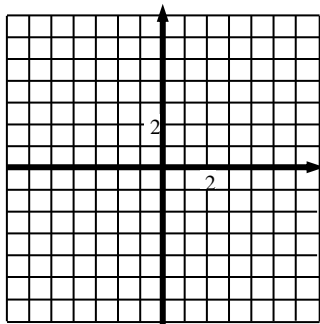
Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

Domain _____        Range _____

2.    $f(x) = -x^2 + 3x - 2$

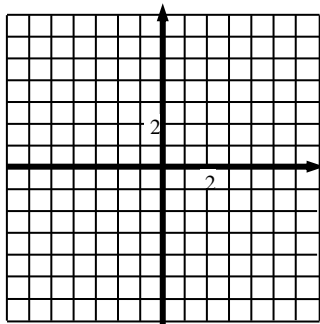| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

Domain _____        Range _____

3.    $f(x) = x^2 - 9$

| x | y |
|---|---|
|   |   |
|   |   |
|   |   |
|   |   |

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

Domain _____        Range _____