Quadratics – Day 1   Name _____
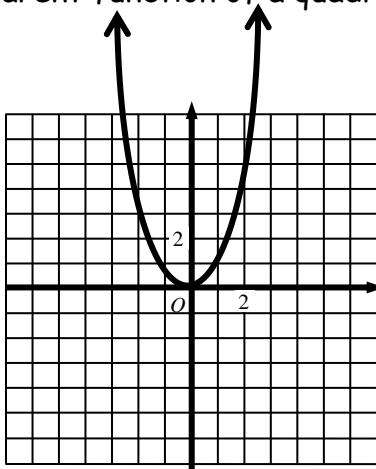Notes   Date _____ Per. _____

Quadratic Functions are graphs in the shape of a parabola ("u" shape). Depending on the equation of a quadratics expression the graph can either open up or down.

The standard form for a quadratic equation is $Ax^2 + Bx + C = 0$.
Where A, B, & C are all numbers.

In the parent function of a quadratic: $y = x^2$, the A = 1, and the B & C are equal to zero.

The parent function of the quadratic is shown at the right. We can identify many components of a quadratic graph by looking at it.

The *vertex* is the <u>maximum</u> or <u>minimum</u> point on the graph. It will always be in the center of the "u".

A <u>maximum</u> means it is at the *top* of the "u". A <u>minimum</u> means it is at the *bottom* of the "u".

The *line of symmetry* is the line that divides the graph in half. The line of symmetry always goes through the vertex point and is written in the form of an equation x = *the x value at the vertex*.

The roots are where the quadratic graph crosses or touches the x-axis. The roots are also called x-intercepts, zeros, or solutions. Generally in a quadratic there will be two roots. Sometimes though there is only one or even none.

Line of Symmetry x = -1

Vertex (1, -5)

Minimum point

Roots (-3, 0) and (4, 0)
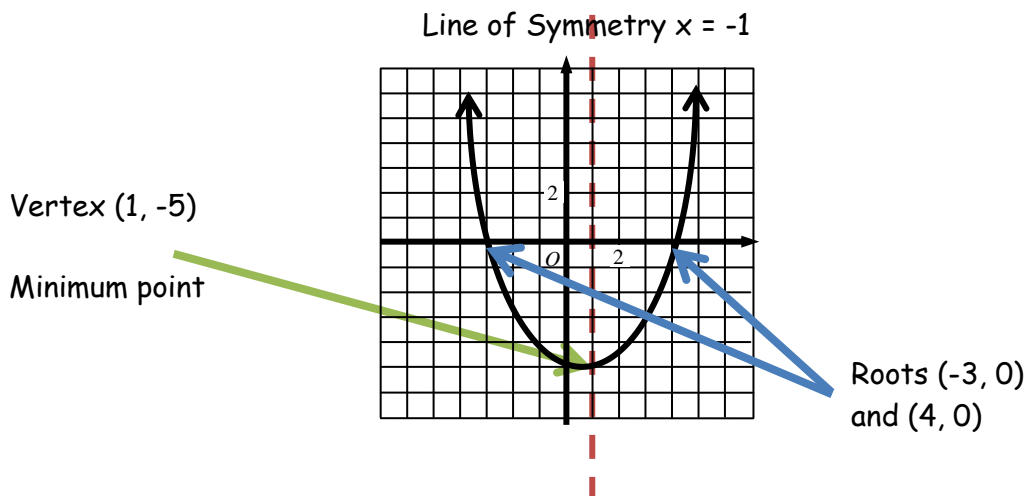
Quadratics – Day 1   Name _____
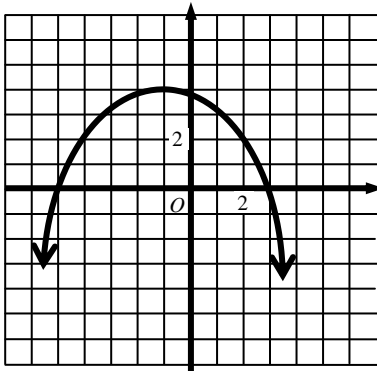
Notes   Date _____ Per. _____

Identify the parts of each quadratic function. The graph of a quadratic function is called a **parabola**.
<u>Draw the line of symmetry for each quadratic function.</u>
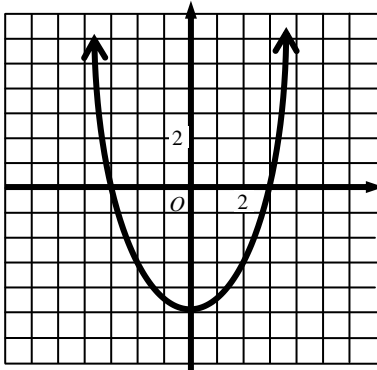
1.

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

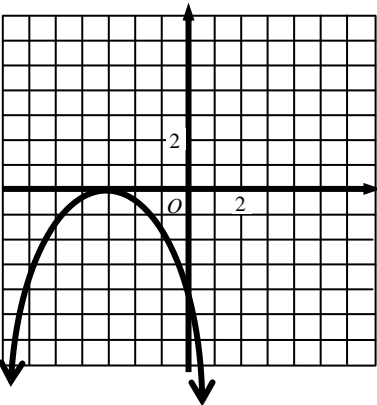Domain _____   Range _____

2.

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

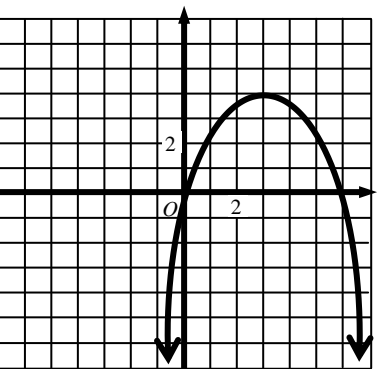Domain _____   Range _____

3.

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

Domain _____   Range _____

4.

Vertex _____ Maximum or Minimum point? _____

Equation of the Line of Symmetry _____

x-intercepts (or roots) _____

Domain _____   Range _____