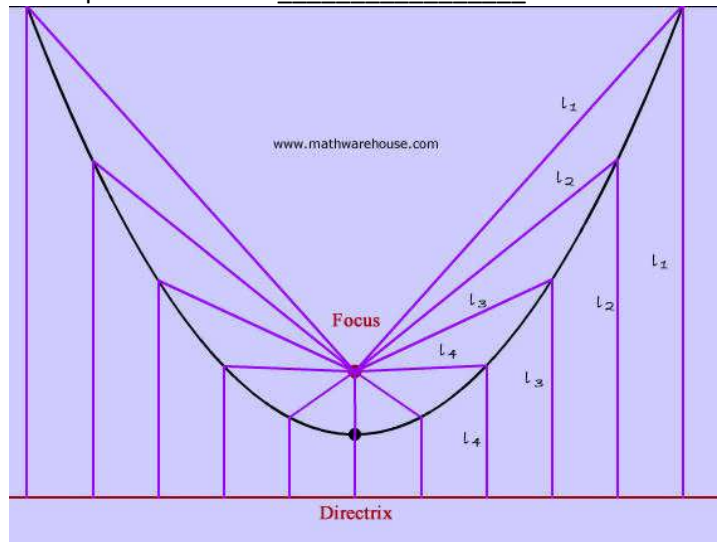**The Focus and Directrix of a Parabola**

- A parabola is made up of points that are equidistant from a point called the _____ and a line

  called the _____.

- The axis of symmetry is _____

  to the _____ going through the

  _____.

- The vertex is ½ way between the _____

  and _____ on the

  _____.

A New Equation of a Parabola

$$y = a(x - h)^2 + k$$

EX. Find the vertex, axis of symmetry, focus and directrix for $(x + 3)^2 = -20(y - 1)$.

    a. Which variable is squared? So which way does it face?

    b. What is the value of p? Which way does it open?

EX. Find the vertex, axis of symmetry, focus and directrix for $(y - 3)^2 = 8(x - 5)$.

      a.   Which variable is squared? So which way does it face?

      b.   What is the value of p? Which way does it open?

EX. Find the vertex, axis of symmetry, focus and directrix for $y^2 + 6y + 12x - 15 = 0$.

EX. Find the equation of a parabola with a focus of (4, 0) and a directrix of x = -4.

EX. Find the equation of a parabola with a focus of (3, -2) and a directrix of y = -8.