DEFINITION: A parabola is the set of points that are equal distance from the **focus** and the **directrix**.

1. Sasha and Keoni have a conjecture about the equation of a parabola with a vertex at the origin and a distance of p between the vertex and the focus. They conjectured that the equation would be $y = \frac{x^2}{4p}$. On the graph below, lable the distance between the vertex and focus as *p*. Label the graph with anything else you know. Remember to label a general point, (x, y), on the parabola.

2. Apply what you know from previous work to find a general equation of a parabola with a vertex at the origin and a distance of p units from the vertex to the focus.