General equation for a parabola with a vertex at the origin: $y = \frac{x^2}{4p}$

What effect does the value of p have on the graph of the equation of $y = \frac{x^2}{4p}$?. Below is a graph of the parabola with a vertex on the origin and a p value of ¼. Your goal is to graph the parabola with a p value of ½ .

1. Add and label the focus and directrix of the parabola with a p value of ½.

2. Show that the point (1, 1/2) is a point on the parabola with a p value of ½ with both the algebraic method, using the equation, and the geometric method, using the definition of a parabola.

3. Use the equation and geometric methods to determine and label several points on the graph of this parabola. Sketch in the parabola with a p value of ½. What do you notice?