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 $y = \frac{x^2}{4p}$? To make sense of this question, begin by constructing the graph for the parabola with a p value of ¼ .

1. Find the specific equation for the parabola with a p value of ¼.

2. Plot and label the focus and the directrix for this parabola with a p value of ¼. How do you know where they are?

3. Use the equation and geometric methods to determine several points on the graph of this parabola. Sketch in the parabola with a p value of ¼. How do you think the graph will change if p increases to ½?