

Section 12-2 Parabolas

Only 1 variable is squared

Def: the set of points equidistant from a focus and a given line (called the directrix)

**note: $e = 1$ for all parabolas

$$y = x^2$$

opens up if x^2 is positive, down if $-x^2$

vertex (0, 0)

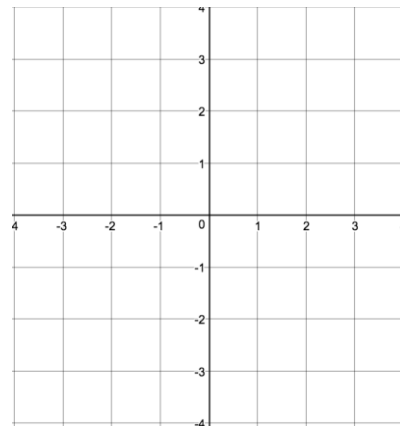
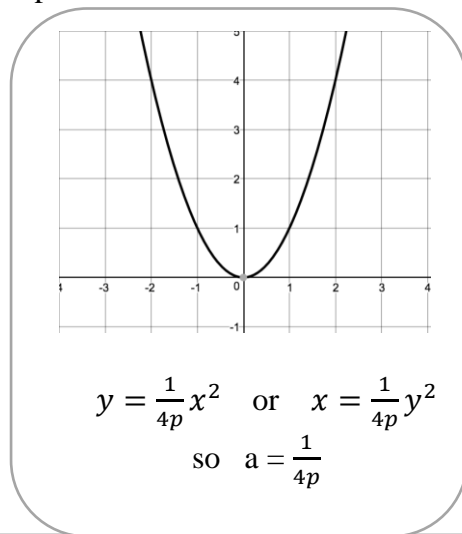
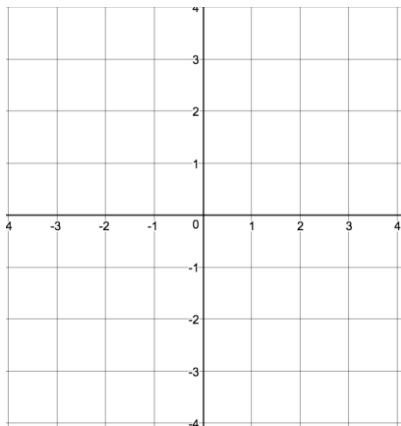
--need to find another point to graph
and use line of symmetry for 3rd point

$$x = y^2$$

opens right if y^2 is positive, left if $-y^2$

vertex (0, 0)

--need to find another point to graph
and use line of symmetry for 3rd point



Vertex form of Parabola

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

vertex (h, k)

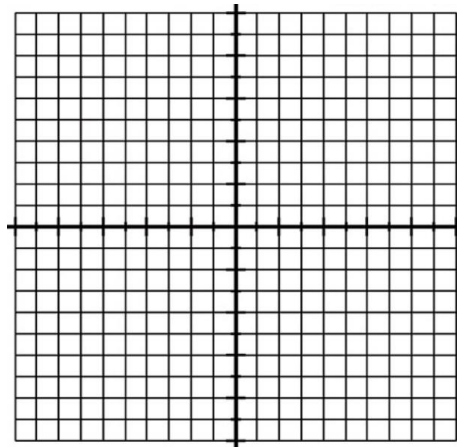
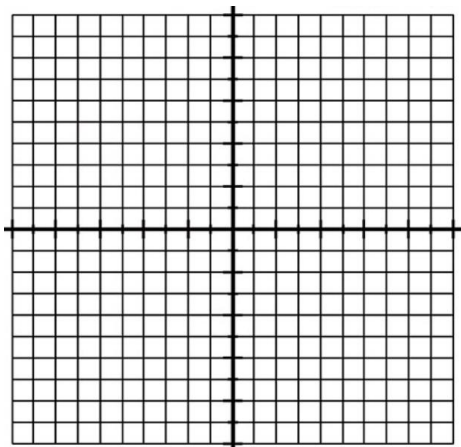
$$x = a(y - k)^2 + h$$

vertex (h, k)

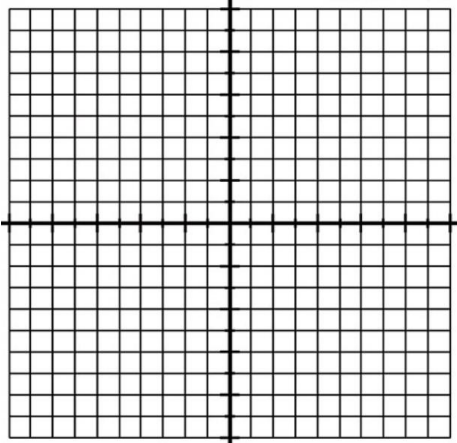
Graph.

1. $0.2(x - 3)^2 + (y + 1) = 0$

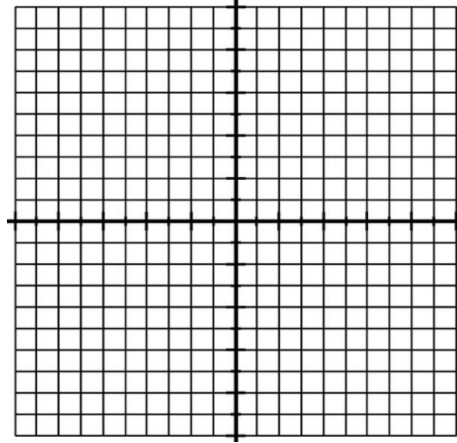
2. $(x - 5) + 0.5(y - 2)^2 = 0$



3. $y = 2(x - 4)^2 + 3$



4. $x + 3 = (y - 2)^2$



5. $y = x^2 - 6x + 2$ in form $y = ax^2 + bx + c$ vertex $\left(\frac{-b}{2a}, y\right)$

