

# Honors Algebra II

## Notes Section 8.2

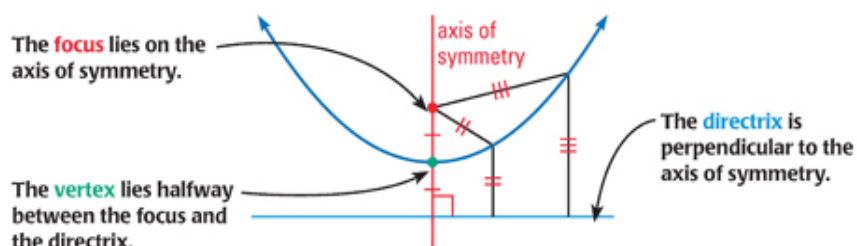
### Graph and Write Equations of Parabolas

**Parabola:** \_\_\_\_\_

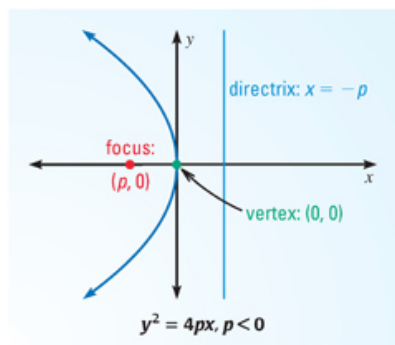
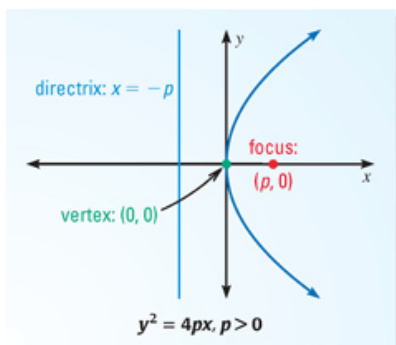
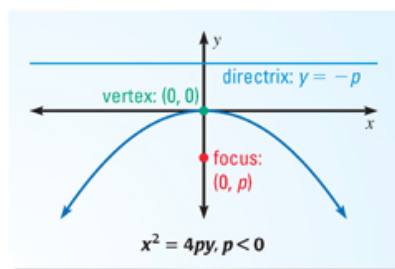
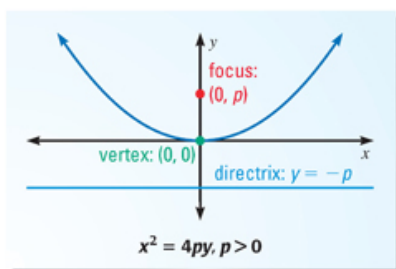
**Focus:** a point that falls in the interior of the parabola and is the same distance from the parabola as the directrix.

**Directrix:** a line perpendicular to the axis of symmetry and equidistant to the vertex as the focus is to the vertex.

**Vertex:** lowest/highest point of a parabola; lies equidistant from the focus and directrix.

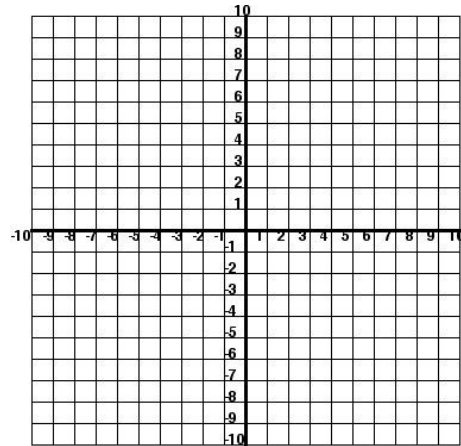


#### TYPES of PARABOLAS



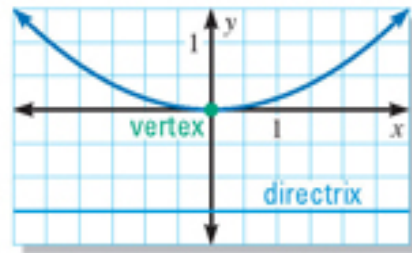
**EXAMPLE 1**

Graph  $x = -1/8y^2$ . Identify the focus, directrix, and axis of symmetry.

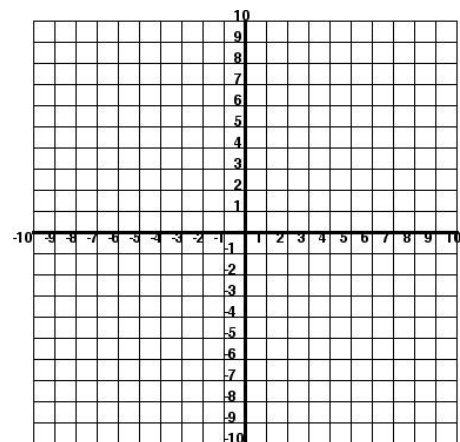


**EXAMPLE 2** Write an equation of the parabola.

a)



b)



**EXAMPLE 3** The Eurodish, developed to provide electricity in remote areas, uses a parabolic reflector to concentrate sunlight onto a high-efficiency engine located at the reflector's focus. The sunlight heats helium to  $650^{\circ}\text{C}$  to power the engine.

a) Write an equation for the Eurodish's cross section with its vertex at  $(0,0)$ .

b) How deep is the dish?

