



9-1 Additional Practice

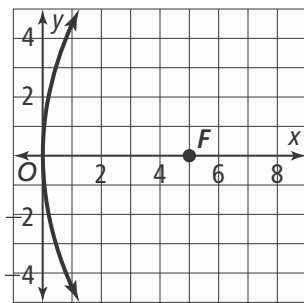
Parabolas

Write an equation for a parabola given the focus and directrix.

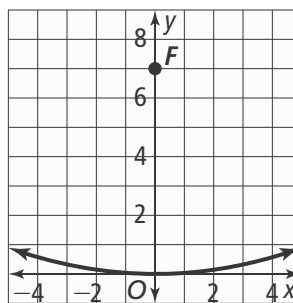
- focus $(0, 4)$ and directrix $y = -4$
- focus $(3, 0)$ and directrix $x = -3$
- A parabola has a focus of $(-2, 0)$ and directrix at $x = 2$.
 - What is the vertex of the parabola?
 - Is the equation in the form $y = ax^2$ or $x = ay^2$?
 - What is the focal length?
 - What is the equation of the parabola?

What is the equation of each of the parabolas shown?

4.



5.



- A TV satellite dish has the shape of a parabola modeled by the equation $x = \frac{1}{120}y^2$. The satellite dish has a sensor at its focus. Using the graph of the equation and assuming the base of the dish, or vertex, is positioned at the point $(0, 0)$, at what coordinates would the sensor be placed?
- Complete the square to identify the vertex, focus, and directrix of the parabola with the equation $0 = -y + x^2 - 6x + 2$.
- What is the value of c for the parabola $x = \frac{1}{10}(y + 6)^2 + 2$? Explain.
- The midpoint of a pipe with a diameter of 0.5 in. is located 10 in. from a mirror with a parabolic cross section used as a solar collector. The midpoint of the pipe is at the focus of the parabola. Write an equation to model the cross section of the mirror.