

For each parabola described, use the information given to find the location of the missing feature. It may help to draw a sketch.

- If the focus is $(1,4)$, and the directrix is $y = -3$, where is the vertex?
- If the vertex is $(-2,2)$, and the focus is $(-2,-4)$, what is the equation of the directrix?
- If the directrix is $x = 3$, and the vertex is $(6,2)$, where is the focus?

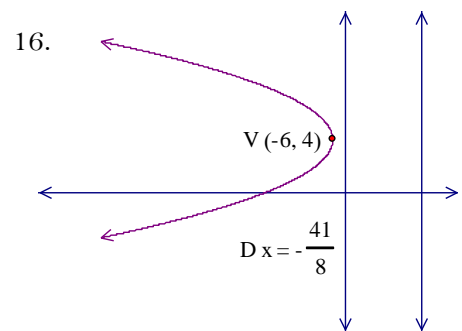
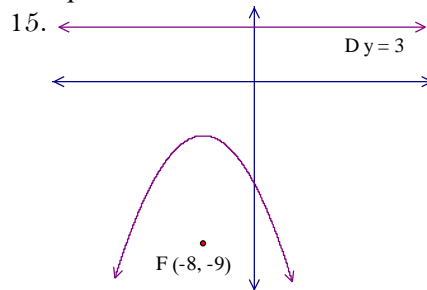
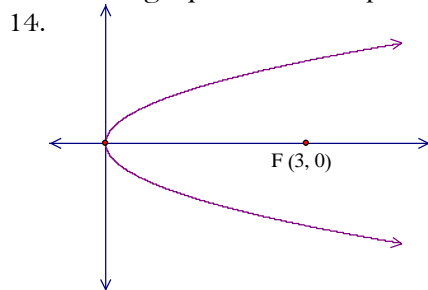
Given the equation of the directrix and the focus find the equation of the parabola.

- $y = 4$, $F(4,8)$
- $y = 2$, $F(3,-6)$
- $x = -2$, $F(-4,-5)$
- $y = -4$, $F(5,2)$
- $x = 3$, $F(-7,9)$
- $x = -3$, $F(3,-1)$

Find the equation of the parabola with the given information. Then, sketch a complete graph.

- dir $x = 3$, $V(0,0)$
- dir $y = 5$, $V(-4,2)$
- $V(2,-6)$, $F(2,0)$
- $V(-4,5)$, $F(8,5)$

Given the graph, find the equation of the parabola.



17. The pilot of a small boat charts a course such that the boat will always be equidistant from an upcoming rock and the shoreline.

- Make a sketch of the situation, showing the approximate path of the boat.
- Describe the path of the boat.
- If the rock is 2 miles offshore, write the equation for the path of the boat.

