

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?

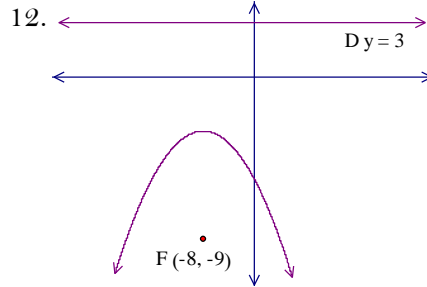
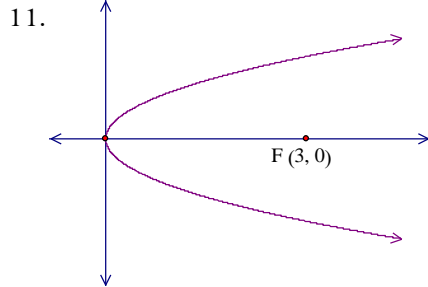
Given the equation of the directrix and the focus find the equation of the parabola.

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

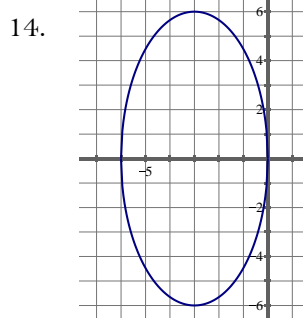
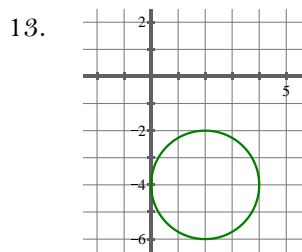
Find the equation of the parabola with the given information. Then, pick 2 and sketch a complete graph.

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

Given the graph, find the equation of the parabola.



Write the equation of each circle or ellipse.



Graph each circle or ellipse.

- $(x+3)^2 + (y-1)^2 = 9$
- $\frac{(x+2)^2}{16} + \frac{(y-5)^2}{9} = 1$