

### 10.2b Parabolas

Identify the vertex, the focus and the directrix of the graph of each equation. Then sketch the graph.

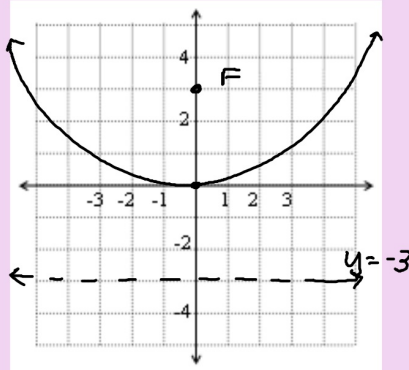
$$y = \frac{1}{12}x^2$$

$$|a| = \frac{1}{4c}$$

$$\frac{1}{12} = \frac{1}{4c}$$

$$3 = c$$

vertex (0,0)  
focus (0,3)  
directrix  $y = -3$



Identify the vertex, the focus and the directrix of the graph of each equation. Then sketch the graph.

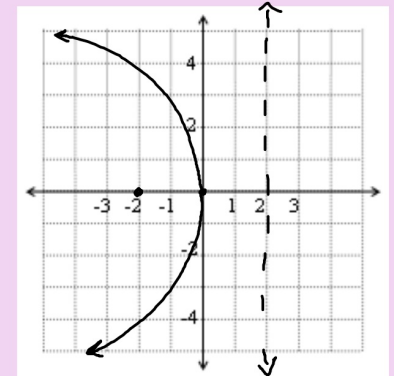
$$x = -\frac{1}{8}y^2$$

$$|a| = \frac{1}{4c}$$

$$\frac{1}{8} = \frac{1}{4c}$$

$$c = 2$$

vertex (0,0)  
focus (-2,0)  
directrix  $x = 2$



Identify the vertex, the focus and the directrix of the graph of each equation. Then sketch the graph.

$$y^2 - 4x - 4y + 16 = 0$$

$$y^2 - 4y + 4 = 4x - 16 + 4$$

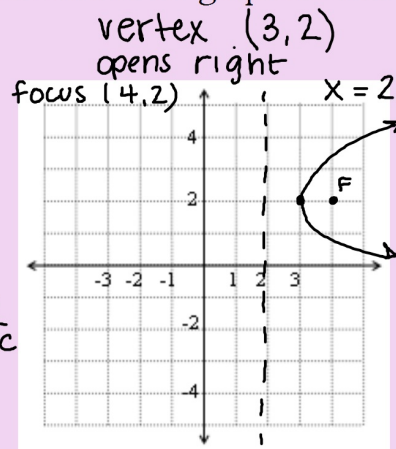
$$(y-2)^2 = 4x - 12$$

$$(y-2)^2 + \frac{12}{4} = \frac{4x}{4}$$

$$\frac{1}{4}(y-2)^2 + 3 = x$$

$$\frac{1}{4} = \frac{1}{4c}$$

$$1 = c$$



Identify the vertex, the focus and the directrix of the graph of each equation. Then sketch the graph.

$$x^2 + 4x + 8y - 4 = 0$$

$$x^2 + 4x + 4 = -8y + 4$$

$$(x+2)^2 = -8y + 8$$

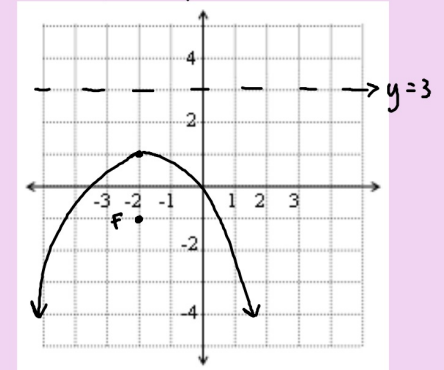
$$(x+2)^2 - 8 = -8y$$

$$-\frac{1}{8}(x+2)^2 + 1 = y$$

$$\frac{1}{8} = \frac{1}{4c}$$

$$2 = c$$

vertex (-2, 1)  
focus (-2, -1)  
directrix  $y = 3$



homework:

page 546 # 16-34 even, 36-40 all, 47 & 51