

## Answer on Question #57313 – Math – Analytic Geometry

### Question

1. The focus for this parabola is (3, 0)

$$x^2 = 12y$$

A: True

B: False

### Solution

The standard form of the equation of a parabola with vertex at the origin and a vertical axis is

$$x^2 = 4py$$

The focus is at point  $(0, p)$ .

For parabola  $x^2 = 12y$  the vertex is at  $(0,0)$ ,  $4p = 12$ , hence  $p = 3$ . Then the focus is at  $(0, p) = (0,3)$ .

**Answer:** B: False

### Question

2. The equation of the directrix for this parabola is  $x = -2$

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

A. True

B. False

### Solution

The standard form of the equation of a parabola with vertex at the origin and a horizontal axis is

$$y^2 = 4px$$

The focus is at point  $(p, 0)$ , the equation of directrix is  $x = -p$ .

If  $x = -\frac{1}{8}y^2$ , then  $y^2 = -8x$ ,  $4p = -8$ , hence  $p = -2$ . For this parabola the vertex is at  $(0,0)$ , the focus is at  $(-2,0)$ , the equation of directrix is  $x = 2$ .

**Answer:** B: False.