Answer on Question #57312 – Math – Analytic Geometry

Question

1. This parabola opens to the right.

x^2 = 12y

A: True
B: False

Solution

In this question the x is squared, so this parabola is vertical, the leading coefficient is positive $y = \frac{1}{12}x^2$, $\frac{1}{12} > 0$, therefore it opens upwards (like U), it does not open to the right.

Answer: B: False.

Question

2. Write the coordinate point for the vertex of this parabola:

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

Solution

The conics form of the sideways parabola equation is $4p(x - h) = (y - k)^2$ and the vertex is (h, k).
We have

(x-0)= - $\frac{1}{8}$ (y-0)^2 or -8(x-0)=(y-0)^2, the vertex is $(h, k)=(0,0)$.

Answer: (0, 0).

Question

3. What is the value of p? x^2 = 12y.

Solution

The conics form of the regular parabola equation is $4p(y - k) = (x - h)^2$

We have $4p(y - 0) = (x - 0)^2$, 4p=12, p=3.

Answer: p=3.

Question

4. What is the length of the focal width? x^2 = 12y.

Solution

The value |4p| is the focal width of the parabola. From Part 3 we know p=3, therefore, the length of the focal width is 4·3=12.

Answer: 12.