

Answer on Question #57223 – Math – Calculus

Question

1. This is the equation of a horizontal hyperbola.

$$\frac{(x-1)^2}{25} - \frac{(y+3)^2}{9} = 1$$

A: True

B: False

Solution

The equation of a horizontal hyperbola is

$$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$$

Thus, $\frac{(x-1)^2}{25} - \frac{(y+3)^2}{9} = 1$ is the equation of a horizontal hyperbola, where $h = 1$, $k = -3$, $a^2 = 25$, $b^2 = 9$.

Answer: A: True

Question

2. Write the coordinates for the center of the hyperbola:

$$\frac{(y-2)^2}{16} - \frac{(x+1)^2}{144} = 1$$

Answer: _____

Solution

The center of a vertical hyperbola $\frac{(y-y_0)^2}{a^2} - \frac{(x-x_0)^2}{b^2} = 1$ is a point (x_0, y_0) .

The center of hyperbola $\frac{(y-2)^2}{16} - \frac{(x+1)^2}{144} = 1$ is $(-1, 2)$.

Answer: $(-1, 2)$.