Answer on Question #57407 – Math – Calculus

Question

Graph each equation be sure to identify the important features such as the center, verticies, foci, directrix and asymptotes. The graph is scaled 14 tall and 14 wide.

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

Solution

The ellipse equation has the form

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

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

$$a = 4; b = 3; h = -2; v = 3;$$

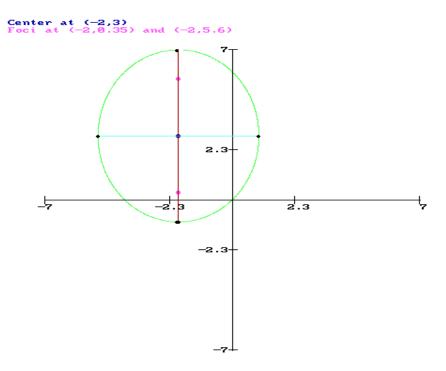
$$c = \sqrt{a^2 - b^2} = \sqrt{7}.$$

This is ellipse with the center at (h, v) = (-2,3).

The vertices: (h, v+ a) =(-2,7), (h, v- a) = (-2,-1), (h+ b, v) = (1,3), (h- b, v) = (-5,3). Foci: (h, v+ c)= (-2, 3+ $\sqrt{7}$), (h, v- c) = (-2, 3- $\sqrt{7}$).

Directrix: None.

Asymptotes: None.



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