

Question #72358, Math / Calculus

Given

$$\begin{cases} \frac{x^2}{9} + \frac{y^2}{4} = 1 & (1) \\ \frac{(x+1)^2}{16} - \frac{y^2}{9} = 1 & (2) \end{cases}$$

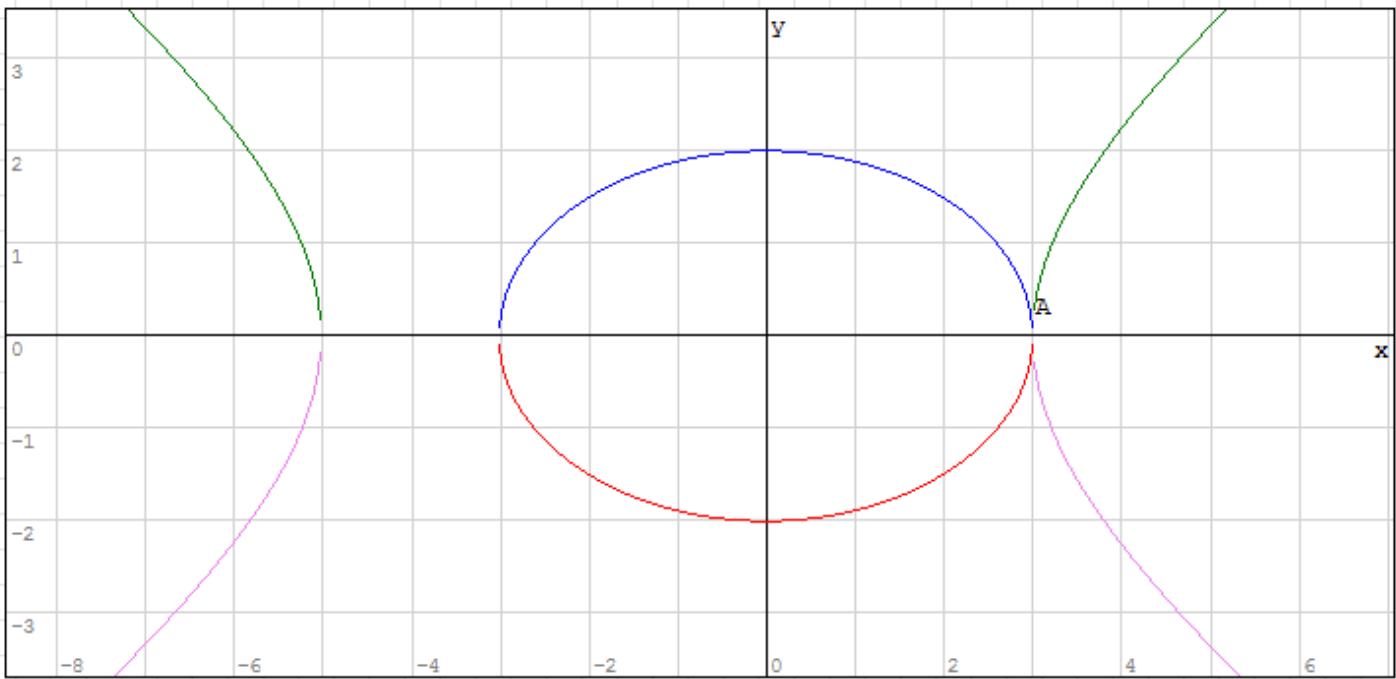
where (1) is the equation of ellipse and (2) the equation of hyperbola.

It is suitable to find the solution using graphical method.

Let's rewrite equations (1), (2) as functions of a single argument in order to draw plots of each curve in SMath Studio:

$$y_1(x) := 2 \cdot \sqrt{1 - \frac{x^2}{9}}$$

$$y_2(x) := 3 \cdot \sqrt{\frac{(x+1)^2}{16} - 1}$$



$$\begin{cases} \pm y_1(x) \\ \pm y_2(x) \end{cases}$$

From the plot we can see the only point A(3;0) that belongs to each curve (1) and (2). The answer is: one point.

Solved in SMath Studio