03.09.20

AAO1

$$x^2 - y^2 - 4x + 6y = 6$$

a)

$$x^2 - 4x + \_\_\_\_ - y^2 + 6y = 6$$

$$x^2 - 4x + 4 - (y^2 - 6y + 9) = 6 + 4 - 9$$

$$(x-2)^2 - (y-3)^2 = 1$$

$$\left(\frac{x-2}{1}\right)^2 - \left(\frac{y-3}{1}\right)^2 = 1$$

$$\cos^2\theta + \operatorname{sen}^2\theta = 1 \quad (\div \cos^2\theta)$$

$$1 + \operatorname{tg}^2\theta = \sec^2\theta$$

$$\sec^2\theta - \operatorname{tg}^2\theta = 1$$

Assim:

$$\frac{x-2}{1} = \sec(\theta) \quad \rightarrow \quad x = 2 + \sec(\theta)$$

$$\frac{y-3}{1} = \operatorname{tg}(\theta) \quad \rightarrow \quad y = 3 + \operatorname{tg}(\theta)$$

Logo:

$$\begin{cases} x(t) = 2 + \sec(t) \\ y(t) = 3 + \operatorname{tg}(t) \end{cases}$$

$$\therefore \vec{r}(t) = (x_0 + a\sec t)\vec{i} + (y_0 + b\sec t)\vec{j}$$

$$\therefore \vec{r}(t) = (2 + \sec(t))\vec{i} + (3 + \operatorname{tg}(t))\vec{j}$$

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b)

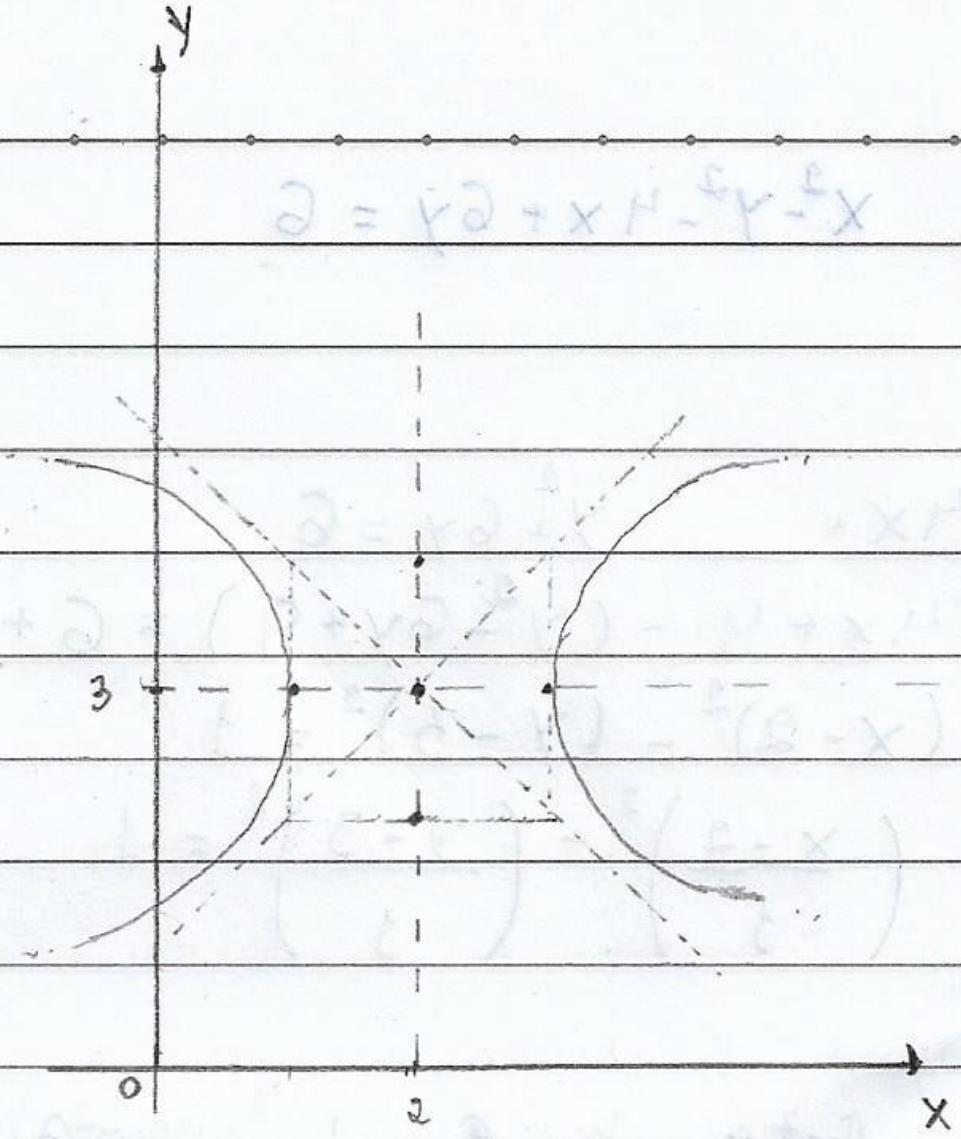
$a = 1$

$b = 1$

$e^2 = a^2 + b^2$

$e = \sqrt{2}$

$C = (2,3)$



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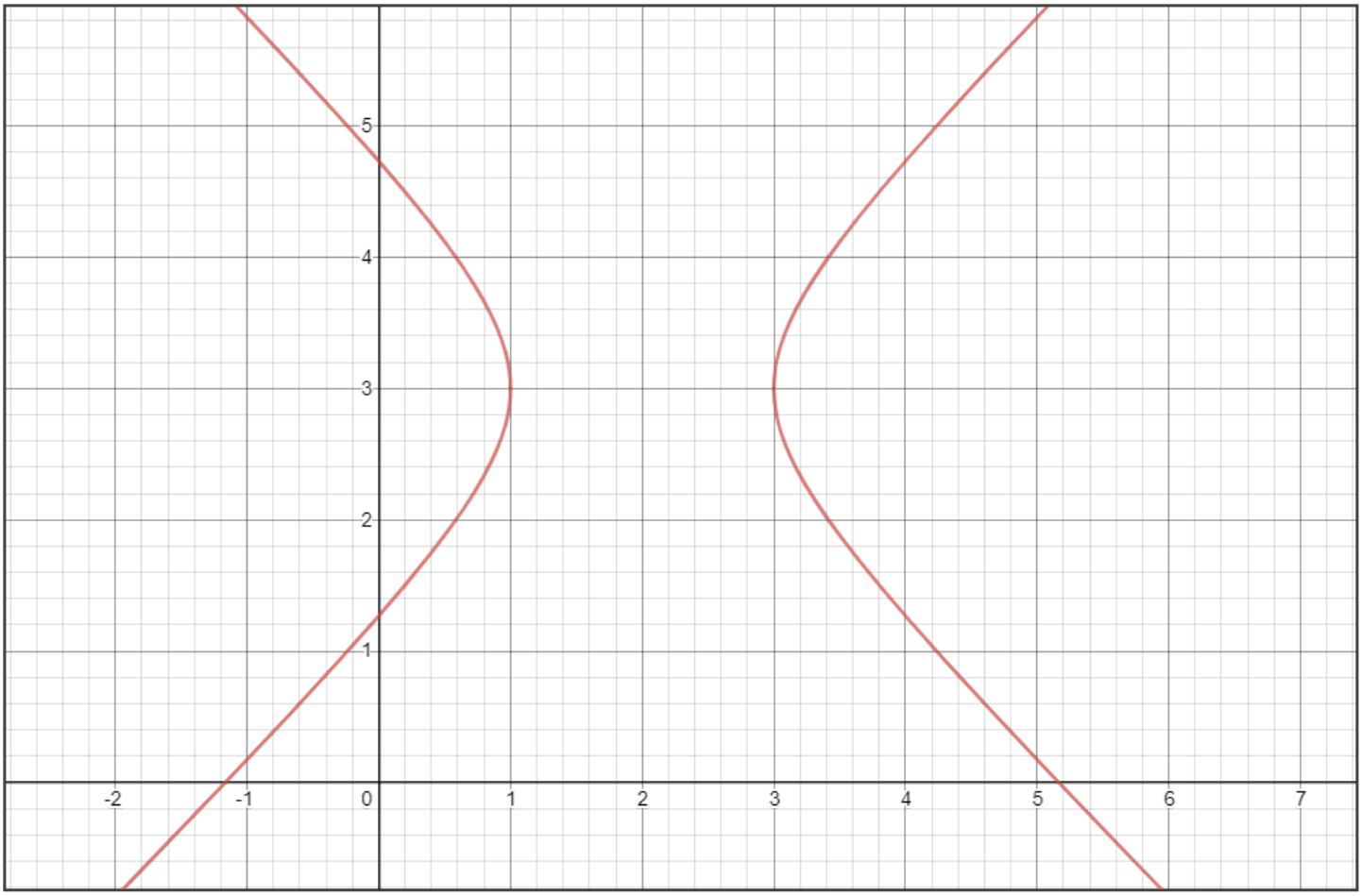

1

$$(x-2)^2-(y-3)^2=1$$