

Problema II

a - Particula 1

$$\sin t = \frac{y_1}{3}$$

$$\cos t = \frac{y_1}{\sqrt{2}}$$

$$\cos^2 t + \sin^2 t = 1$$

$$\left(\frac{y_1}{2}\right)^2 + \left(\frac{x_1}{3}\right)^2 = 1$$

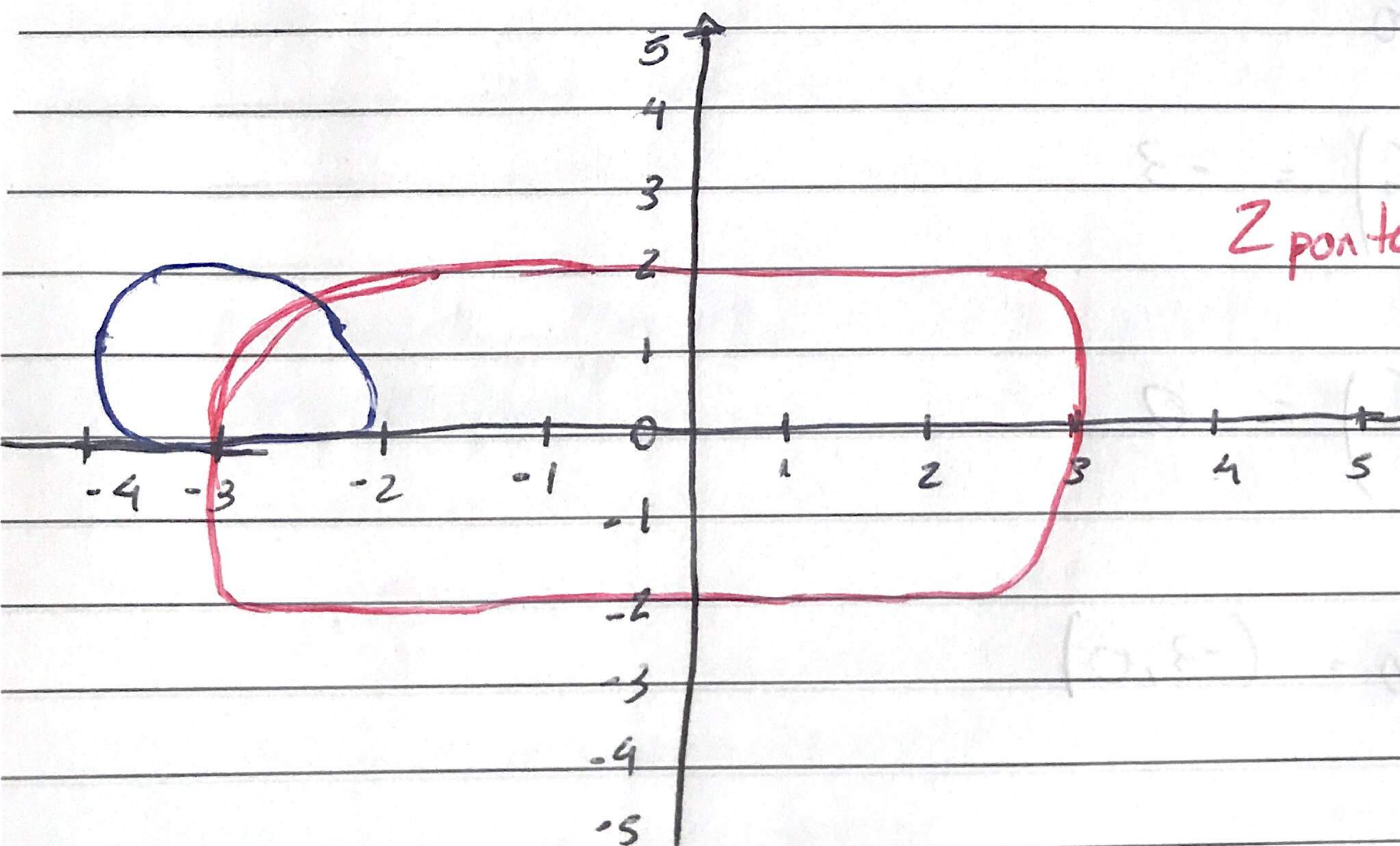
Particula 2

$$\sin t = y_2 - 1$$

$$\cos t = x_2 + 3$$

$$\cos^2 t + \sin^2 t = 1$$

$$(x_2 + 3)^2 + (y_2 - 1)^2 = 1$$



2 pontos de interseção

$$b. (x_1, y_1) = (x_2, y_2)$$

$$3 \operatorname{sen} t = -3 + \cos t$$

$$2 \cos t = 1 + \operatorname{sen} t$$

$$\rightarrow 1^a \rightarrow \cos t = 3 \operatorname{sen} t + 3$$

$$\rightarrow 2^a \rightarrow 2(3 \operatorname{sen} t + 3) = 1 + \operatorname{sen} t$$

$$6 \operatorname{sen} t + 6 = 1 + \operatorname{sen} t$$

$$5 \operatorname{sen} t = -5$$

$$\operatorname{sen} t = -1$$

$$t = \frac{3\pi}{2}$$

Ponto de Colisão

$$x_1 = 3 \cdot \operatorname{sen} \left(\frac{3\pi}{2} \right) = -3$$

$$y_1 = 2 \cdot \cos \left(\frac{3\pi}{2} \right) = 0$$

Ponto de Colisão = $(-3, 0)$

Refreshing

$$c - x_2 = 3 + \cos t$$
$$yz = 1 + \sin t$$

$$(x_1, y_1) = (x_2, y_2)$$

- $3 \sin t = 3 + \cos t$
- $2 \cos t = 1 + \sin t$

$$\rightarrow 1^\circ \rightarrow \cos t = 3 \sin t - 3$$

$$\rightarrow 2^\circ \rightarrow 2(3 \sin t - 3) = 1 + \sin t$$
$$6 \sin t - 6 = 1 + \sin t$$
$$5 \sin t = 7$$

$$\sin t = \frac{7}{5}$$

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As partículas não se colidem, porém tem 2 pontos de INTERSECÇÃO! ⚠