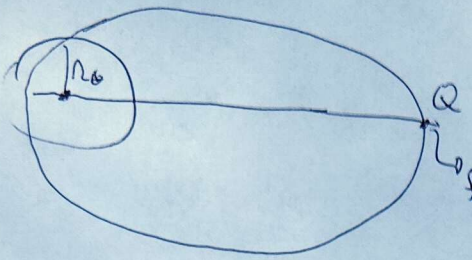


(1)

1^o PARCIAL 2025

$$a = \frac{q + Q}{2} = 3,25 R_0$$

$$q = a(1-e) = 0,5 R_0 \Rightarrow e = 0,84615$$

$$v = a(1-e \cos E) \Rightarrow \cos E = 0,8818 \Rightarrow E = 35,09 + \frac{\pi}{180} \text{ RAD}$$

$$M = E - e \sin E = 0,1259 \text{ RAD} = 7,2157$$

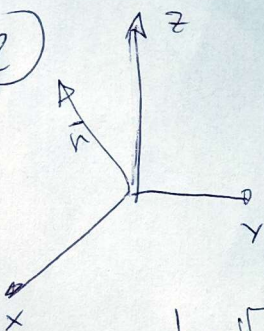
$$\Delta t = \frac{\Delta M}{M} \rightarrow (180 - 7,2157) \pi / 180$$

$$\Rightarrow \Delta t = 0,1652 \text{ RAD} = 3,966 \text{ HORAS}$$

$$\sqrt{\frac{\mu_0}{a^3}} \text{ RAD/S} = 18,2466$$

$$v_{\text{INDICADO}}^2 = \mu_0 \left(\frac{2}{r_0} - \frac{1}{a} \right) \Rightarrow v = 5,43 \times 10^{-3} \text{ UA/DIA} = 10,3 \text{ KM/SEG}$$

(2)



$$\vec{h} = \vec{r} \wedge \vec{v} = (-1, -2, 1) \times 0,01 \Rightarrow |h| = 0,03$$

$$h^2 = 2 \times 10^{-4} = \mu \left(\frac{2}{r} - \frac{1}{a} \right) \Rightarrow a = 4,573 \text{ UA}$$

$$h = \sqrt{\mu a (1-e^2)} \Rightarrow e = 0,57346$$

$$\hat{h} \cdot \hat{z} = \cos i \Rightarrow i = 70,52$$

$$\frac{h_z}{h}$$

$$\hat{z} \wedge \hat{h} = \sin i \hat{m}$$

$$\Rightarrow \hat{m} = (0,707, -0,707, 0)$$

$$\Rightarrow \Omega = 315^\circ$$

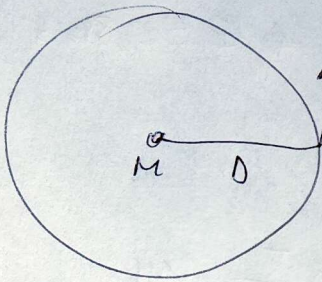
$$\frac{(2, -2, 0)}{3}$$

$$\vec{r} \cdot \vec{v} = -0,01 + 0 + 0 < 0$$

$$\Rightarrow \dot{r} < 0$$

SE ACONCE

3



$$v = \sqrt{\frac{\mu}{D}}$$

Amplitude

oscillation

$$= \sqrt{\frac{2\mu'}{D}}$$

oscillation

$$\Rightarrow \mu' = \mu/2$$

$$M' = M/2$$

period $M/2$