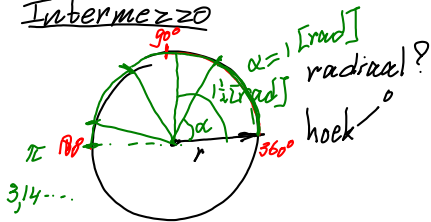


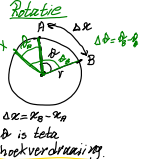
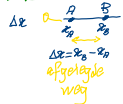
Rotatie mechanica

lineair \leftrightarrow rotatie

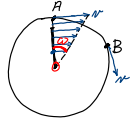
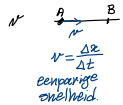
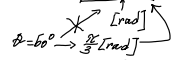
Intermezzo



Aspect Linear



$$\Delta x = \phi \cdot r$$

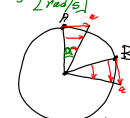
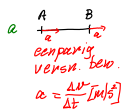


$$v = \frac{\Delta x}{\Delta t}$$

$$r \cdot \omega = \frac{r \cdot \Delta \phi}{\Delta t}$$

$$\omega = \frac{\Delta \phi}{\Delta t}$$

omega → hoeksnelheid [rad/s]



α = hoekversnelling

$$a = \frac{\Delta v}{\Delta t}$$

$$r \cdot \alpha = \frac{r \cdot \Delta \omega}{\Delta t}$$

$$\alpha = \frac{\Delta \omega}{\Delta t} [\text{rad/s}^2]$$

Linear

$$x_e = x_0 + v_0 t + \frac{1}{2} a t^2$$

$$v_e = v_0 + a t$$

$$v_e^2 = v_0^2 + 2 \Delta x \cdot a$$

Rotative

$$\theta_e = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2$$

$$\omega_e = \omega_0 + \alpha t$$

$$\omega_e^2 = \omega_0^2 + 2 \Delta \theta \cdot \alpha$$

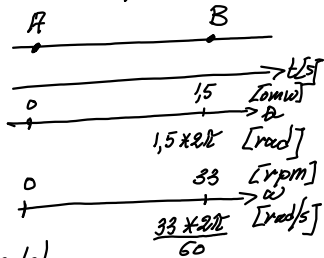
② platenspeler.

stilstand $\rightarrow 1,5 \text{ [omw]} \rightarrow 33 \text{ [rpm]}$.

Vraag α ?

Oplossing

Ref. model



Reken model

$$\omega_e^2 = \omega_0^2 + 2\theta\alpha$$

$$\left(\frac{33 \times 2\pi}{60}\right)^2 = 0^2 + 2 \cdot (1,5 \cdot 2\pi) \alpha$$

$$\alpha \approx 0,63 \text{ [rad/s}^2\text{]}$$

