

Hoek  $\alpha$  starthoek.

Hoek  $\beta$  eindhoek.

Energiebalans.

$$\frac{1}{2} m \alpha^2 \omega^2 + \frac{1}{2} m \alpha^2 \omega^2 + m g \alpha \sin \beta = m g \alpha \sin \alpha.$$

Rot. Kin. Energie

Pot. Energie Rest.

Pot. Energie start

$$\frac{1}{2} m \alpha^2 \omega^2 + \frac{1}{6} m \alpha^2 \omega^2 = -m g \alpha \sin \beta + m g \alpha \sin \alpha.$$

$$\frac{3 m \alpha^2 \omega^2 + m \alpha^2 \omega^2}{6} = m g \alpha \sin \alpha - m g \alpha \sin \beta.$$

$$\omega^2 (3 \alpha^2 + \alpha^2)$$

$$= 6 m g \alpha (\sin \alpha - \sin \beta).$$

$$\omega^2$$

$$= \frac{6 m g \alpha (\sin \alpha - \sin \beta)}{4 \alpha^2}$$

$$\omega = \sqrt{\frac{3 g (\sin \alpha - \sin \beta)}{2 \alpha}} \quad \text{Hoek snelheid.} \quad \textcircled{B}$$

$$\text{Hoek } \Omega \text{ is gekend} \rightarrow \text{arc lengte} = 2 \pi \alpha \frac{\Omega}{360^\circ}.$$

$$\frac{\text{arc lengte}}{\text{Hoek snelheid}} = \text{nodige tijd}$$



Yersneffing (center of mass.)

(2)

$$- (\alpha \times \vec{w}^2 \times \cos \beta + \alpha \times \vec{w}^1 \sin \beta) \quad (A)$$

$$\vec{w}^2 = - \frac{3g \cos \beta}{4\alpha} \quad (d)$$

Wanneer plank faakt komt v/d muur  $N_1 = 0$ .  
"  $m \times \text{Acc}$

A wordt.

$$- \alpha m (\underbrace{\vec{w}^2}_{\rightarrow B} \times \cos \beta - \underbrace{\vec{w}^1}_{\rightarrow C} \sin \beta) = 0.$$

$$- \alpha m \left( \frac{3g (\sin \alpha - \sin \beta)}{2\alpha} \times \cos \beta - \frac{3g \cos \beta \times \sin \beta}{4\alpha} \right) = 0$$

$$\frac{3g (\sin \alpha - \sin \beta)}{2\alpha} \times \cos \beta = \frac{3g \cos \beta \times \sin \beta}{4\alpha}$$

$$\frac{\sin \alpha - \sin \beta}{2} = \frac{\sin \beta}{2}$$

$$2(\sin \alpha - \sin \beta) = \sin \beta$$

$$2 \sin \alpha = 3 \sin \beta \quad \text{KRITISCHE HOEK}$$

$$\frac{2}{3} \sin \alpha = \sin \beta \rightarrow \beta = \arcsin\left(\frac{2}{3} \sin \alpha\right)$$







