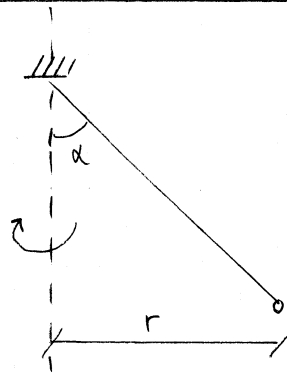


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$$\text{Omloppstiden } T = \frac{8,36 \text{ s}}{5} = 1,67 \text{ s}$$

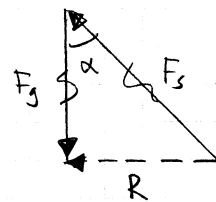
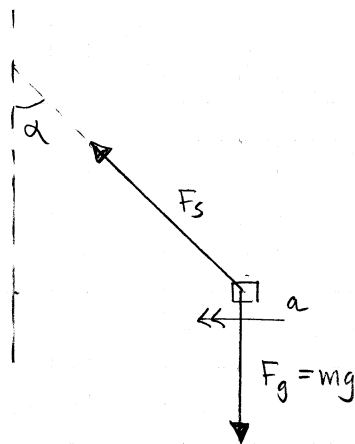
- I figuren mäts snärets längd till 56 mm och banans radie till $\frac{78 \text{ mm}}{2} = 39 \text{ mm}$.
Verkliga radien bör vara

$$r = \frac{39}{56} \cdot 103 \text{ cm} = 72 \text{ cm} = 0,72 \text{ m}$$

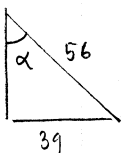
Banarten

$$v = \frac{2\pi r}{T} = \frac{2\pi \cdot 0,72 \text{ m}}{1,67 \text{ s}} = 2,7 \text{ m/s}$$

- Fnlägg Batman.



Vinkeln α bestäms från mätningar i uppgiftsfiguren



$$\sin \alpha = \frac{39}{56} \Rightarrow \alpha = 44^\circ$$

Resultantens storlek blir ur

$$\tan \alpha = \frac{R}{F_g} \Rightarrow R = F_g \tan \alpha = mg \tan \alpha$$

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Newton II på Batman: ($K = ma$ med $a = \frac{v^2}{r}$)

(forts)

$$mg \tan \alpha = m \frac{v^2}{r} \Rightarrow g = \frac{v^2}{r \tan \alpha} = \frac{2,7^2}{0,72 \tan 44^\circ} \text{ N/kg} = 10,5 \text{ N/kg} \text{ m/s}^2$$

Svar: Banfarten 2,7 m/s, tyngdaccelerationen 11 m/s²