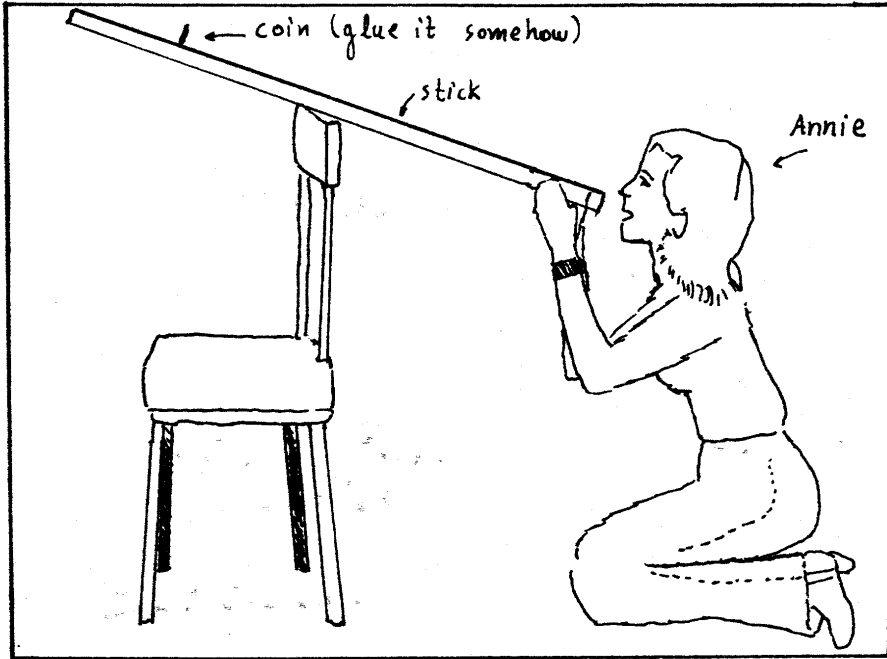


# MEASURING MOON'S SIZE

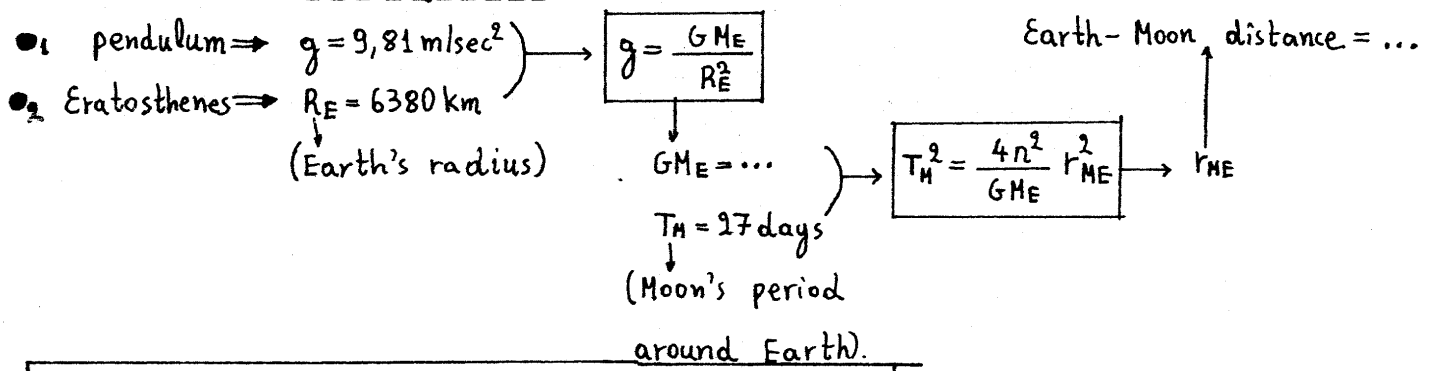



$$\frac{\text{moon's diameter}}{\text{Earth-Moon dist}} = \frac{\text{coin's diameter}}{\text{Eye-coin distance}}$$

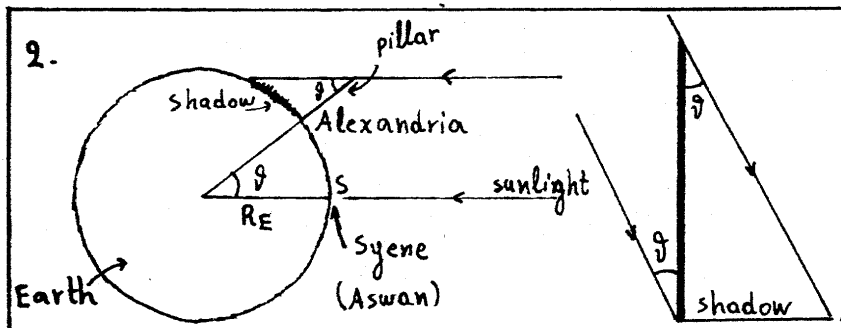
It suffices to calculate the Earth-Moon distance and do the coin-experiment. Then, moon's diameter can be found.  
What is the Earth-Moon distance

1st method: Look it up. min distance = 363000 km, max distance = 405500 km.

2nd method: Do it yourself



1.  If it goes back AND forth N times, then the period is  $T = \frac{N}{f}$  (t: how much you waited) and  $T = 2\pi\sqrt{\frac{l}{g}} \Leftrightarrow g = \dots = 9,81 \text{ m/sec}^2$



Eratosthenes found that  $\theta = 7,5^\circ$  by measuring the height and the shadow. Then he had a sucker walk all the way from Alexandria to Syene and measure the distance by counting his steps.

He found that  $\widehat{AS} = 805 \text{ km}$ . With a little geometry, you can find  $R_E$ . Do it yourself.