

Report Sheet

FRICTIONAL FORCES

Data:

Total Mass (g)	Normal Force (N)	Static Friction (N)	Kinetic Friction (N)
525	5.15	2	1
1050	11	4	3.2
1575	16.25	6	4
2100	21.5	8	5.2
2625	26.75	9	6.8

Include a graph of frictional force as a function of normal force with both data sets on the same graph. Record the slope of each line as the coefficients of friction.

Coefficient of static friction: 3.429×10^{-3}

Coefficient of kinetic friction: 2.59×10^{-3}

Questions:

- 1) Why must the coefficient of static friction always be greater than or equal to the coefficient of kinetic friction?

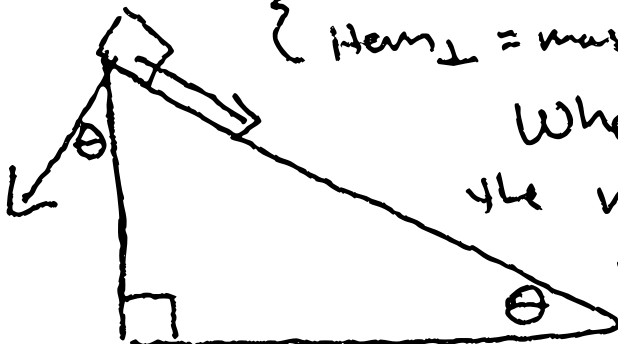
I takes more energy to start something from rest than to keep an already moving "particle" moving! after it gets over the threshold kinetic friction is constant

- 2) Why do items begin to slide down an inclined plane as the angle is increased? (A free body diagram may be helpful.)

calculate the force

$$\begin{cases} F_{\text{item}} = \text{mass} \cdot \text{gravity} \sin(\theta) \\ F_{\text{item}} \perp = \text{mass} \cdot \text{gravity} \cos(\theta) \end{cases}$$

for low speeds



When the angle increases the the max 90° you get more and more of the mass affecting it eventually if it can it will overcome static friction threshold