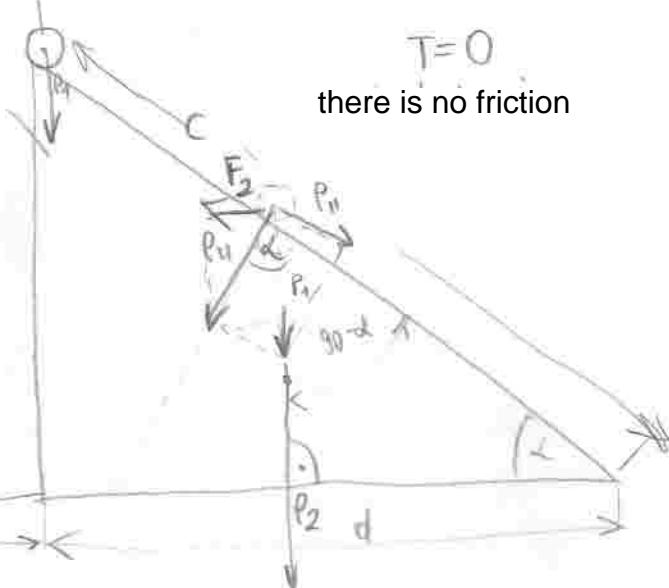


$m$  - mass of material point



$T=0$

there is no friction

$$P_1 = m \cdot g$$

$$P_{\parallel} = m \cdot g \cdot \sin \alpha$$

$$P_{\perp} = m \cdot g \cdot \cos \alpha$$

$$\frac{d}{c} = \cos \alpha$$

$$c = \frac{d}{\cos \alpha}$$

$$a = g \cdot \sin \alpha$$

$$v_0 = 0$$

$$P_2 = M \cdot g$$

R

$$v = v_0 + a \cdot t$$

$$s = v_0 \cdot t + \frac{a \cdot t^2}{2}$$

$$c = \frac{1}{2} \cdot a \cdot t^2$$

$$c = \frac{1}{2} \cdot g \cdot \sin \alpha \cdot t^2$$

$$\frac{d}{\cos \alpha} = \frac{1}{2} \cdot g \cdot \sin \alpha \cdot t^2$$

$$t^2 = \frac{2d}{g \cdot \sin \alpha \cdot \cos \alpha}$$

$$t = \sqrt{\frac{2d}{g \cdot \sin \alpha \cdot \cos \alpha}}$$

$$F_2 = P_1 \cdot \sin \alpha$$

$$F_2 = (m \cdot g) \cdot \sin \alpha \cdot (\cos \alpha)$$

$$F_2 = (M+m) \cdot a_2 \quad (M+m) - \text{masa ujemadu}$$

$$a_2 = \frac{m}{M+m} \cdot g \cdot \sin \alpha \cdot \cos \alpha$$

$$s_2 = \frac{1}{2} \cdot a_2 \cdot t^2$$

$$s_2 = \frac{1}{2} \cdot \frac{m}{M+m} \cdot g \cdot \sin \alpha \cdot \cos \alpha \cdot \left( \frac{2d}{g \cdot \sin \alpha \cdot \cos \alpha} \right)^2$$

$$s_2 = \frac{1}{2} \cdot \frac{m}{M+m} \cdot g \cdot \sin \alpha \cdot \cos \alpha \cdot \frac{2 \cdot d}{g \cdot \sin \alpha \cdot \cos \alpha}$$

$$s_2 = \frac{m}{M+m} \cdot d \quad [\text{m}]$$

$$s_2 = \frac{m}{M+m} \cdot d \quad [\text{m}]$$

Because there is no friction between slope and ground. There is no air resist. After the passage of time  $t$  slope will be moving through uniform motion with velocity  $v=a \cdot t$ .

If sliding friction factor would be bigger than zero then the position of slope after time  $t$  would be another. Road  $s_2$  which were passed by slope would be smaller.