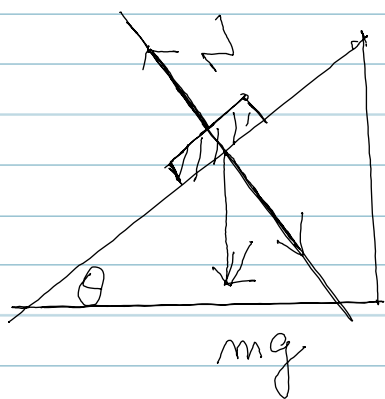


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某人欲在傾斜角為 30° 且佈滿冰的斜坡往上走(如圖)。若鞋子與冰間之靜摩擦係數為 0.3 則 (1) 他能走上斜坡嗎? (2) 若不能, 則靜摩擦係數必需大於多少, 才能走上斜坡? (3) 若傾斜角增加至 37° , 則靜摩擦係數為原來 30° 時的幾倍?



$$W_g = mg$$

$$W_{gx} = mg \sin \theta$$

$$W_{gy} = mg \cos \theta$$

$$f_s = \mu_s N > W_{gx}$$

$$N = mg \cos \theta$$

$$f_s = \mu_s (mg \cos \theta) > mg \sin \theta$$

$$\mu_s > \frac{\sin \theta}{\cos \theta} = \tan \theta$$

$$(1) \quad 0.3 < \tan 30^\circ = 0.577 \Rightarrow \text{不能}$$

$$(2) \quad \mu_s > \tan 30^\circ = 0.577 \Rightarrow 0.577$$

$$(3) \quad \mu_s' > \tan 37^\circ = 0.75 \quad \frac{\mu_s'}{\mu_s} = 1.3 \text{ 倍}$$

$$\mu_s > \tan 30^\circ = 0.577$$