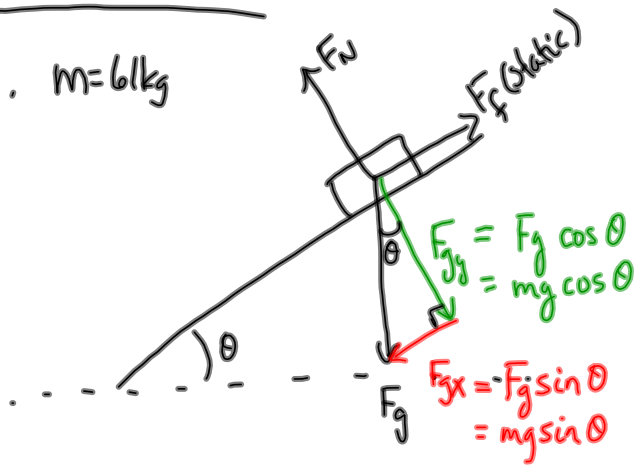
Incline Problems

ppl 11. m=6lkg
474



* TRIG IDENTITY

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

At the instant that the crate starts to slide:

$$F_{gx} = F_f \text{ (static)}$$

$$F_g \sin\theta = \mu_s F_N$$

$$F_g \sin\theta = \mu_s F_{gy}$$

$$F_g \sin\theta = \mu_s F_g \cos\theta$$

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

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

$$\mu_s = \tan\theta$$