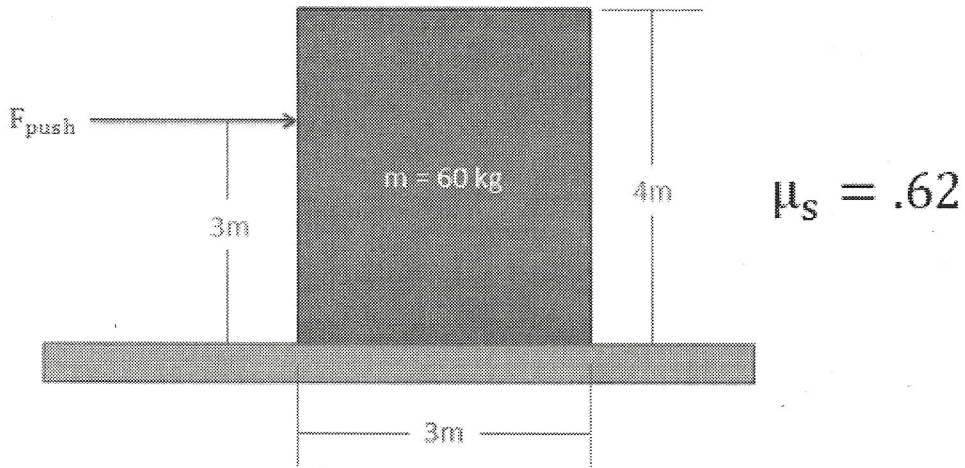


**Question 1:**

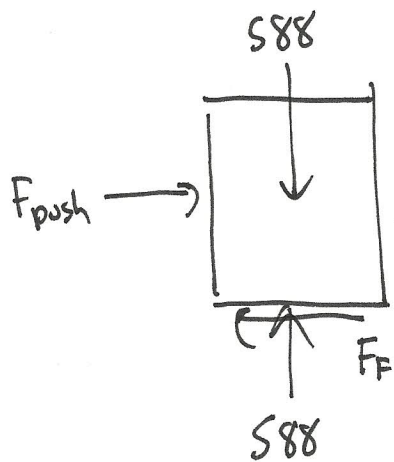
The box shown below is pushed as shown. If we keep increasing the pushing force, will the box first begin to slide or will it tip over?



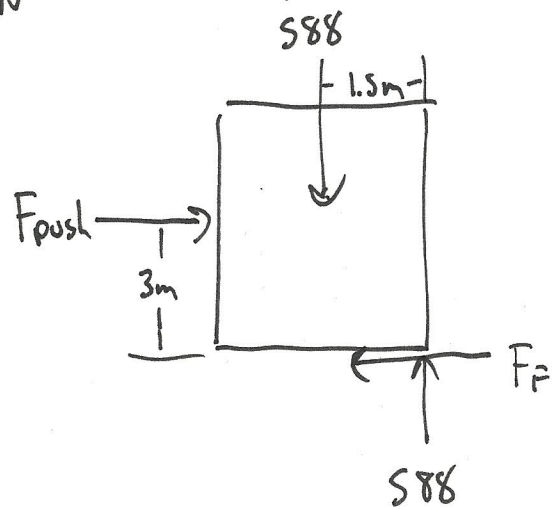
$$F_g = (60)(9.8)$$

$$F_g = 588 \text{ N}$$

Slip



Tip



$$F_F = \mu_s F_N$$

$$F_F = (.62)(588)$$

$$F_F = F_{push} = 364.6 \text{ N}$$

$$(F_{push})(3) = (588)(1.5)$$

$$F_{push} = \frac{(588)(1.5)}{3}$$

$$\star \boxed{F_{push} = 294 \text{ N}}$$

The box will tip first