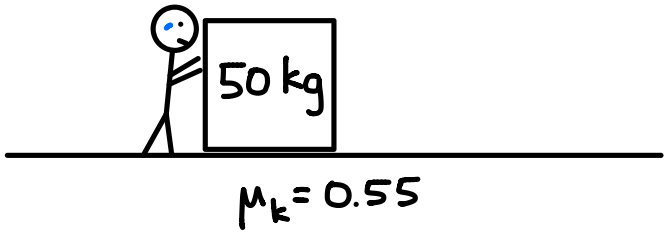
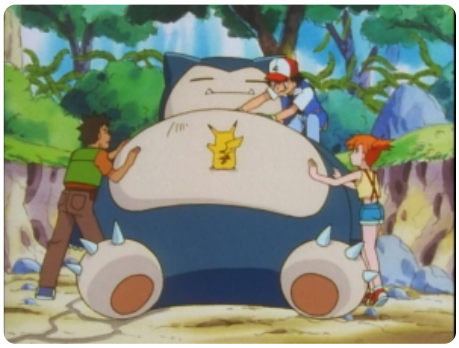
An 50 kg object is pushed with a force of 300 N. The coefficient of kinetic friction between the object and the ground is 0.55. Determine the acceleration of the object.

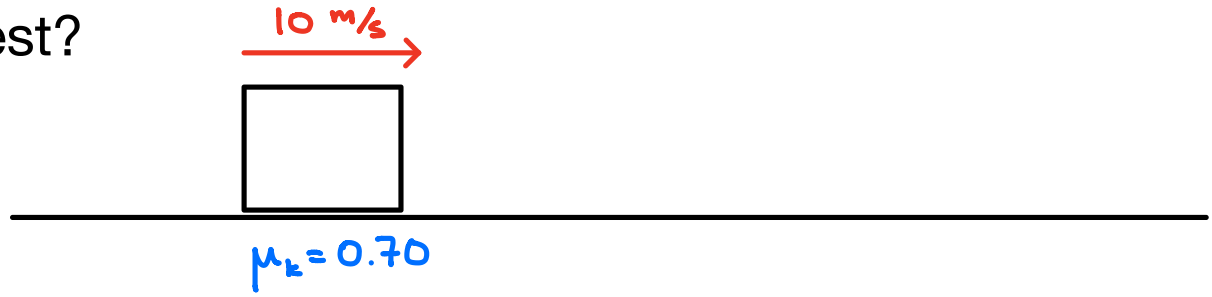


Snorlax has a mass of 460 kg. $\mu_s = 0.70$ and $\mu_k = 0.60$. If Ash and his friends can exert a force of 2600 N, will they be able to move Snorlax out of the way? If so, what will be its acceleration? If not, how much additional force will it require?

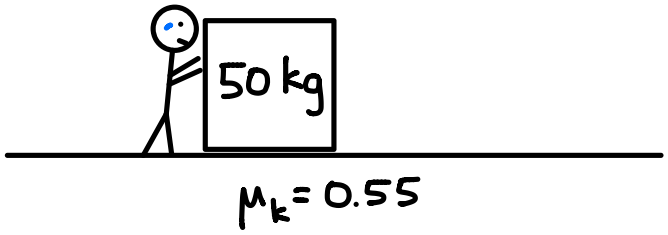


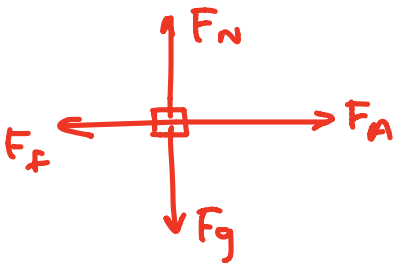
Alex is trying to move a 5 kg chair. His friend Brad says he will he help push the chair and begins to push downwards on the chair with a force of 80 N. What minimum force is required for Alex to move the chair? μs = 0.60

An object is sliding with an initial velocity of 10 m/s across a rough surface (μk = 0.70). How much time will it take for the object to come to rest?



An 50 kg object is pushed with a force of 300 N. The coefficient of kinetic friction between the object and the ground is 0.55. Determine the acceleration of the object.





$F_N = F_g$

$F_N = mg$

$F_{NET} = ma$

$F_A - F_f = ma$

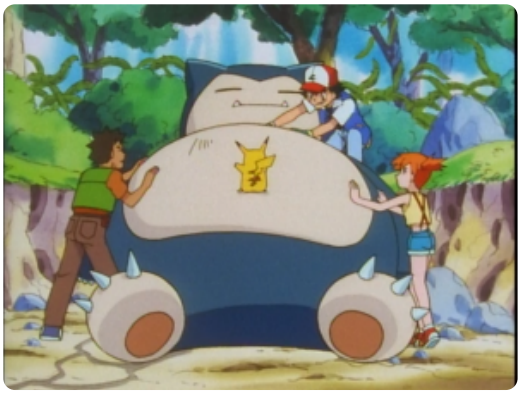
$F_A - \mu F_N = ma$

$F_A - \mu mg = ma$

$$a = \frac{F_A - \mu mg}{m}$$

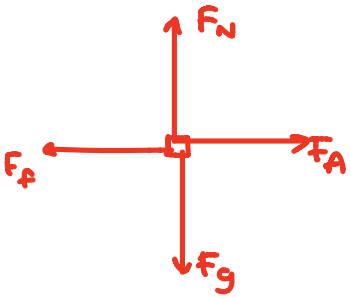
$$= \frac{300 - (0.55)(50)(9.8)}{50}$$

$$= \boxed{0.61 \ \frac{m}{s^2} \quad \text{RIGHT}}$$



Snorlax has a mass of 421.92 kg. $\mu s = 0.70$ and $\mu k = 0.60$. If Ash and his friends can exert a force of 2600 N, will they be able to move Snorlax out of the way?

AT REST → USE μ_s



$F_N = F_g$

$F_N = mg$

$F_{NET} = ma$ (a = 0)

$F_A - F_f = 0$

$F_A = F_f$

$= \mu_s F_N$

$= \mu_s mg$

$= (0.70)(421.92)(9.8)$

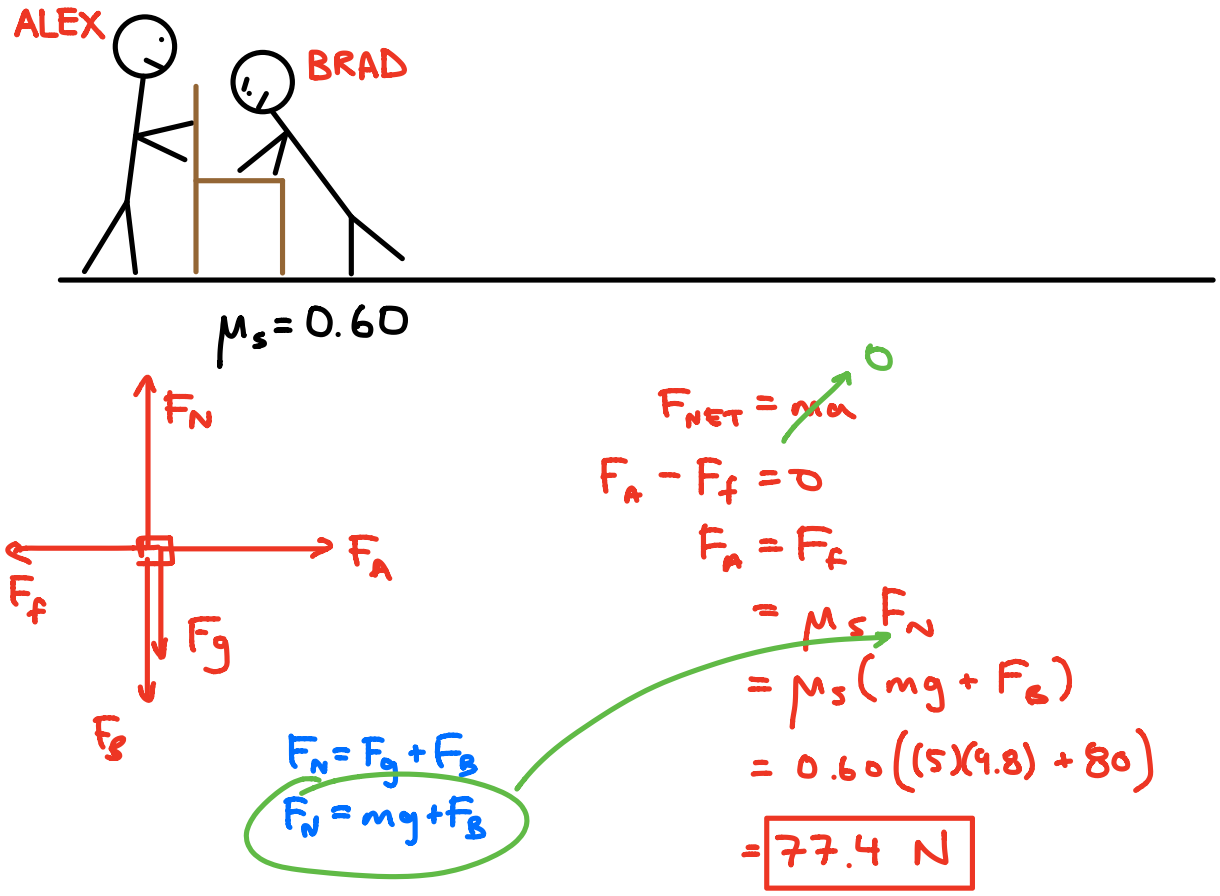
$= 2890$ N

↑ MINIMUM F_A REQUIRED

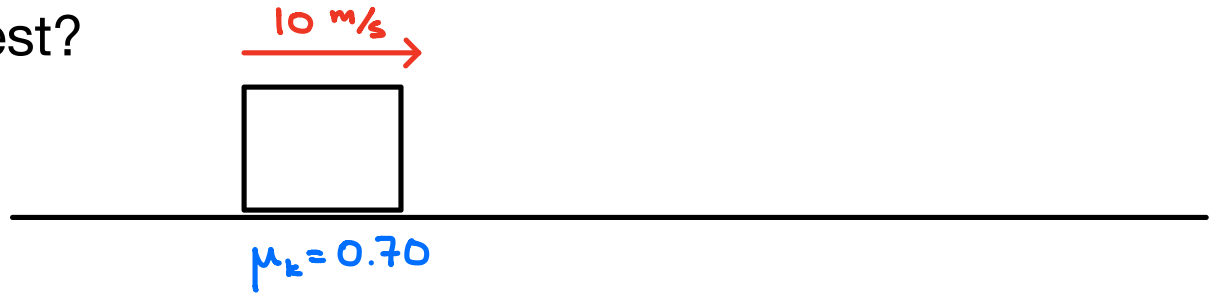
2600 N < 2890 N

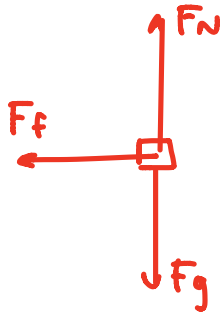
→ NO

Alex is trying to move a 5 kg chair. His friend Brad says he will he help push the chair and begins to push downwards on the chair with a force of 80 N. What minimum force is required for Alex to move the chair? μs = 0.60



An object is sliding with an initial velocity of 10 m/s across a rough surface (μk = 0.70). How much time will it take for the object to come to rest?





$F_N = F_g$

$F_N = mg$

$F_{Net} = ma$

$-F_f = ma$

$-\mu F_N = ma$

$-\mu mg = ma$

$a = -\mu g$

$= -(0.70)(9.8)$

$= -6.86 \ \frac{m}{s^2}$

$v_i = 10 \ \frac{m}{s}$

$v_f = 0$

$a = -6.86 \ \frac{m}{s^2}$

$t = ?$

$v_f = v_i + at$ ($v_f = 0$)

$t = \frac{-v_i}{a} = \frac{-10}{-6.86} = \boxed{1.46 s}$