p208

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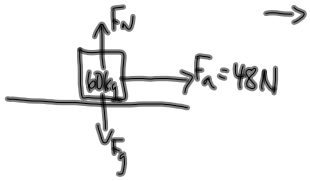
no friction



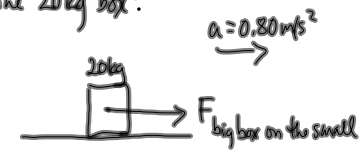
$F_{net} = ma$

$48N = (60kg)a$

$a = 0.8 m/s^2$

the acceleration of EACH box is the same.

Consider the 20kg box:



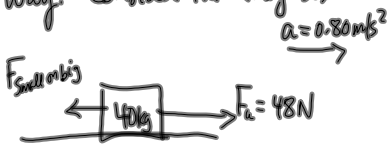
$\vec{F}_{net} = m\vec{a}$

$F_{big\ on\ small} = (20kg)(0.80 m/s^2)$

$F_{big\ on\ small} = 16N$

$\therefore \vec{F}_{small\ on\ big} = 16N$ [opp dir]

Another way: Consider the 40kg box



$\vec{F}_{net} = m\vec{a}$

$F_a - F_{small\ on\ big} = ma$

$48N - F_{small\ on\ big} = (40kg)(0.80 m/s^2)$

$48N - F_{small\ on\ big} = 32N$

$F_{small\ on\ big} = 16N$

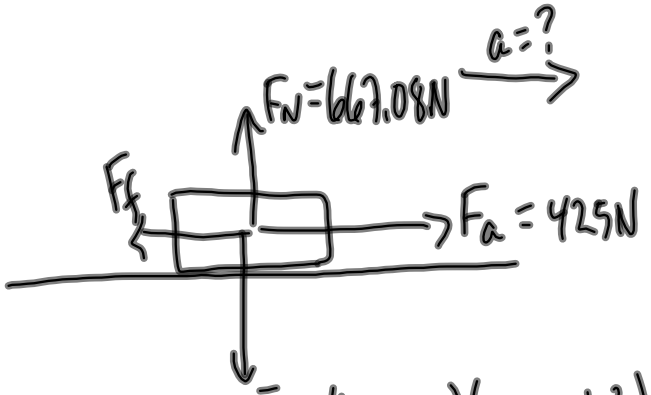
29. a)

$\mu = 0.500$

$F_a = 425\,N$

$m = 68.0\,kg$

$a = ??$



$F_f = \mu F_N$ $F_g = 667.08\,N$

$F_f = (0.500)(667.08N)$

$F_f = 333.54N$

$\vec{F}_{net} = m\vec{a}$

$F_a - F_f = ma$

$425 - 333.54N = (68.0kg)a$

$91.46N = (68.0kg)a$

$\boxed{a = 1.3 m/s^2}$

32.

$m = 2200\,kg$

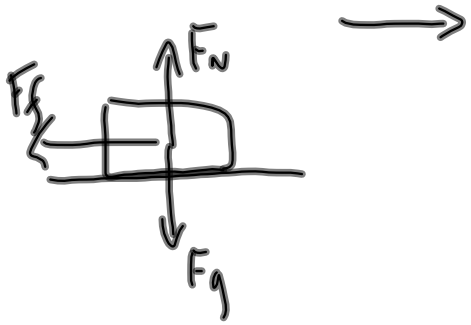
$V_1 = 45\,km/h$

$V_2 = 0$

$\mu = 0.70$

$\Delta d = ?$

① Draw a FBD:



② Find the acc:

$$\vec{F}_{net} = m\vec{a}$$

$$-F_f = ma$$

③ find Δd (use $V_2^2 = V_1^2 + 2a\Delta d$)