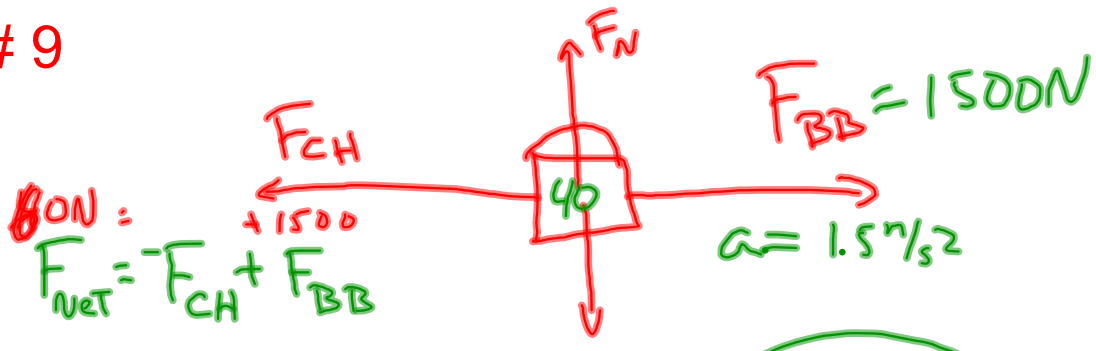
9



+1500

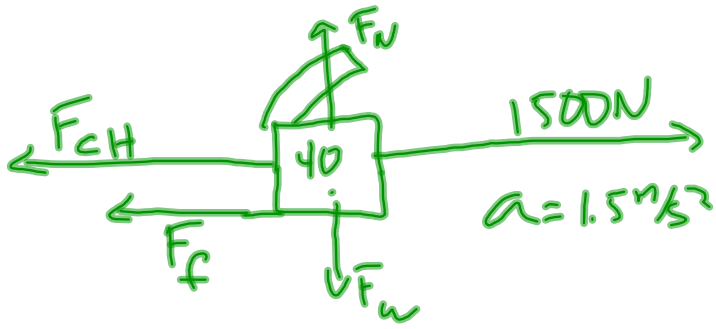
$F_{Net} = -F_{CH} + F_{BB}$

$F_{Net} = ma$

$60N = 40(1.5 m/s^2)$

$-1440N$

#10)



$\mu = 0.165$

$F_{Net} = F_{BB} - F_{CH} - F_f$

$60N = 1500N - F_{CH} - \mu F_N$

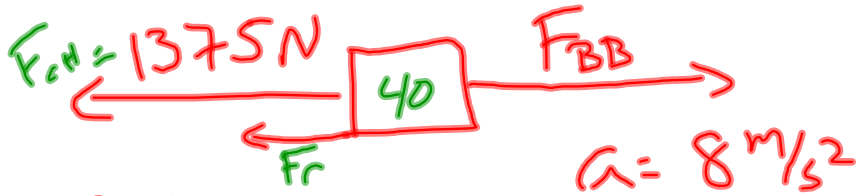
$(.165)(40)(9.8)$

64.68

$F_{CH} = -1564.7N$

$-1375N$

11



$\mu = 0.085$

$F_N = 40(9.81)(.085) = F_f$

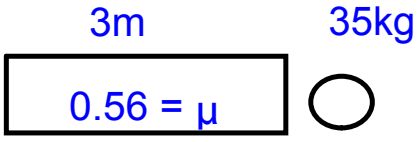
$F_{Net} = F_{BB} - F_{cH} - F_f$

$40(8) = 320N$

$320N = F_{BB} - 1375N - 33.3N$

$F_{BB} = 1728N$

13



$F_f = 0.56\ (35kg)(9.81m/s^2)$

$F_f = 192N$

$F_a = 8700N$

$F_{tot} = F_a - F_f$

$F_{tot} = 8700N - 192N = 8508N$

$8508N = 35kg(a) = 243\ m/s^2$

$V_f^2 = 0 + 2(243\ m/s^2)(3m) = 38.2\ m/s$

$0.035 = \mu$ $\quad F_f = 0.035\ (35kg)(9.81m/s^2) = -12N$

$F_{tot} = F_f$

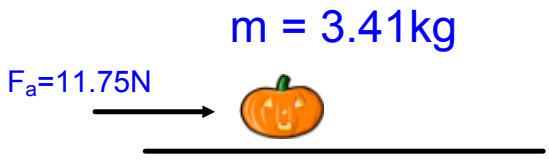
$-12N = 35kg\ (a) \quad a = -0.34m/s^2$

$0^2 = (38.2\ m/s)^2 + 2(-0.34\ m/s^2)(\Delta x)$

$\Delta x = 2145m$

2 Hutto

a) $3.41kg \times 9.81m/s^2 = 33.4N$



b) -33.4N

c) -11.75N constant speed $F_f = F_a$

d) no acceleration $F_f = F_a$

e) $F_f = \mu F_N$

$-11.75N = \mu (3.41kg)(-9.81m/s^2)$

$\mu = 0.35$

$m = 1500kg\,(9.81) = 15206N$

$\Delta x_1 = 80m \quad t = 11.65\,sec \quad \mu = 0.125$

$80m = 0 + \frac{1}{2}(a)(11.65)^2 \approx 1.2\,m/s^2$

$13.7\,m/s$

$V_f = V_i + at$

$V_f^2 = V_i^2 + 2a\Delta$

$V_f = +0.2(11.6$

$V_f^2 + 2(1.2)(1$

$V_i = 7.4\,m/s \quad \Delta x_2 = 120m$

$\Delta x = V_i t = 16\,sec$

$\Delta x_3 = 100m \quad t_3 = 2.5\,sec$

$100m = 7.4(2.5) + \frac{1}{2}(a)(2.5)^2$

$V_i = 7.4\,m/s$

$\Delta x = 100m$

$t = 2.5\,sec$

$2015N = F$

$a = 26\,m/s^2$

$\Delta x_4 = 150m \quad V_f = 0 \quad \mu = 0.256$

$F_f = \mu F_N \quad V_f = 7.4 + 26(2.5$

$V_f = 72\,m/s$

Dare Devil Nick

a) $W = 1500kg\ (9.81\ m/s^2) = 15206N$

b) $80m = 0 + 1/2(a)(11.65\ sec)^2 \quad a = 1.2\ m/s^2$

c) $V_f = 0 + 1.2m/s^2(11.65\ sec) \quad v_f = 13.98\ m/s$

d) $F_f = \mu F_N \quad = 0.125(1550)(9.81\ m/s^2)$ assume wind and sliding are equivalent

e) $7.4m/s = 120m/\Delta t \quad = 16.2\ sec$

f) $0\ m/s^2$ constant velocity

g) $100m = 7.4m/s(2.5\ sec) + 1/2(a)(2.5\ sec)^2 \quad = 26\ m/s^2$

h) $V_f = 7.4m/s + 26\ m/s^2(2.5\ sec) \quad = 72\ m/s$

i) $2015N = 1550kg\ (a)\ 1.3\ m/s^2$

j) $V_f^2 = (72m/s)^2 + 2(26m/s^2)(100m) \quad = 101.9\ m/s$

K) $0 = (101.9\ m/s)^2 + 2(a)(150m) \quad = -34.6\ m/s^2$

k2) $F_f = 0.256(1550kg)(-9.81m/s^2) = -3892.6\ N$