P #C

Ch. 9 Worksheet

a) $\rho = 1000\ kg/m^3$

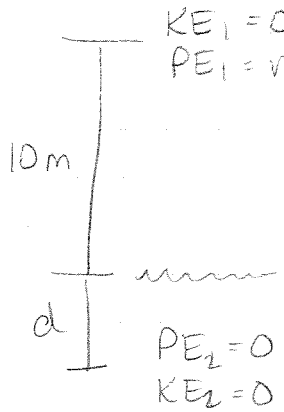
$V = \frac{4}{3} \cdot \pi \cdot r^3 = \frac{4}{3} \cdot \pi \cdot (.075m)^3$

$V = 1.77 \times 10^{-3}\ m^3$

$F_B = \rho \cdot g \cdot V = (1000 kg/m^3)(9.8 m/s^2)(1.77 \times 10^{-3} m^3)$

$F_B = 17\ N$

b)



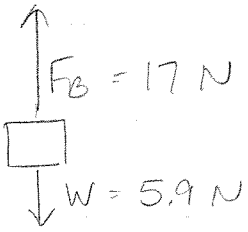
$PE_1 + KE_1 + W = PE_2 + KE_2$

$m \cdot g \cdot (10+d) + 0 + -F_B \cdot d = 0 + 0$

$(.6 kg)(9.8 m/s^2)(10+d) - (17 N) \cdot d = 0$

$d = 5.2\ m$

c)



$W = m \cdot g$

$= (.6 kg)(9.8 m/s^2)$

$W = 5.9\ N$

d) $F_{net} = 17.3 N - 5.9 N$

$F_{net} = 11.4\ N$

e) $F_{net} = 11.4\ N$

$m = .6\ kg$

$F_{net} = m \cdot a$

$11.4 N = (.6 kg) \cdot a$

$a = 19\ m/s^2$

$d = \frac{1}{2} \cdot a \cdot t^2$

$5.2 m = \frac{1}{2} \cdot (19 m/s^2) \cdot t^2$

$t = .73\ sec$