

# HW answers for Chapters 7, 8, 9

Chap 7: #18 (a)  $R = 1130 \text{ N/m}$  (b)  $x = 0.518 \text{ m}$

#32. (a)  $F_0 = 29.2 \text{ N}$  (b) increase (c) slow down & come to rest.

#40. (a)  $U_B - U_A = -2.59 \times 10^5 \text{ J}$   
 $U_B = 0$ ,  $U_A = 2.59 \times 10^5 \text{ J}$

Chap 8: #72. (a)  $h = \frac{5}{2} R$

(b)  $n_b - n_t = 6mg$

Chap 9: #20. (a)  $v_f = \frac{1}{3}(v_1 + 2v_2)$

(b)  $\Delta K = -\frac{m}{3}(v_1^2 + v_2^2 - 2v_1v_2)$

#26.  $v = \frac{4M}{m} \sqrt{gl}$

#56. (a)  $\frac{K_B}{K_A} = \frac{m_1}{m_1 + m_2}$  (b) 1.00

#66. (a)  $v_{\text{wedge}} = -0.667 \text{ m/s}$

(b)  $h = 0.952 \text{ m}$