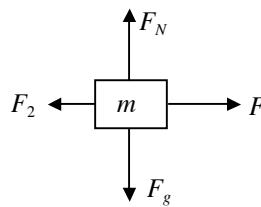
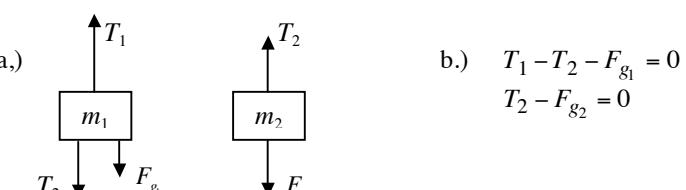
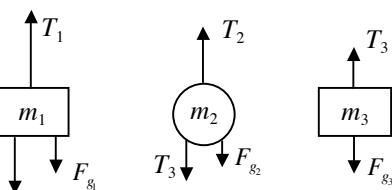
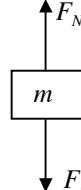
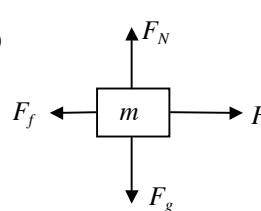
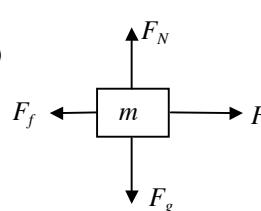
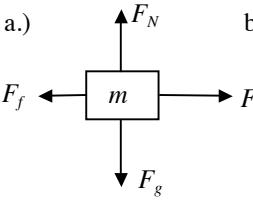
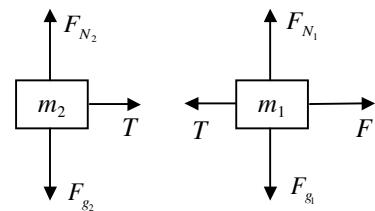
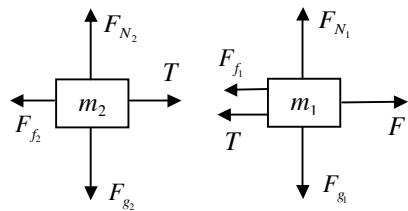
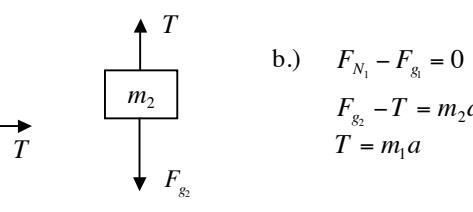
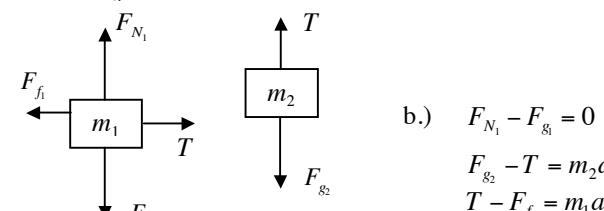
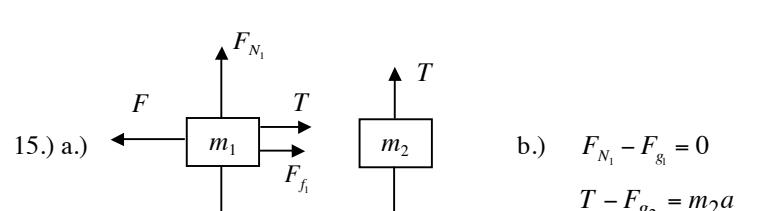
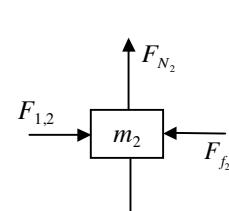


AP Physics 1
Force Practice Problem for Test 5 Answers

- 1.) a.) 
- b.) $F_1 - F_2 = ma$
 $F_N - F_g = 0$
- c.) $a = 2.0 \frac{\text{m}}{\text{s}^2}$, east
- 2.) a.) $F_g = 63.7 \text{ N}$ b.) $F_g = 24.7 \text{ N}$ c.) $F_g = 121.5 \text{ N}$
- 4.) a.) 
- b.) $T_1 - T_2 - F_{g1} = 0$
 $T_2 - F_{g2} = 0$
- c.) $T_1 = 127.4 \text{ N}$ and $T_2 = 78.4 \text{ N}$
- 5.) a.) 
- b.) $T_1 - T_2 - F_{g1} = 0$
 $T_2 - T_3 - F_{g2} = 0$
 $T_3 - F_{g3} = 0$
- c.) $T_2 = 245 \text{ N}$, $T_3 = 147 \text{ N}$, and $m_2 = 10.0 \text{ kg}$
- 6.) a.) $m = 5.51 \text{ kg}$ b.) 
- c.) $F_N - F_g = ma$
- d.) $a = 1.09 \frac{\text{m}}{\text{s}^2}$ upward e.) $a = 2.00 \frac{\text{m}}{\text{s}^2}$ downward
- f.) $F_N = 70.5 \text{ N}$ g.) $F_N = 40.2 \text{ N}$ h.) $F_N = 0$
- 7.) a.) 
- b.) $F_N - F_g = 0$
 $F - F_f = ma$
- c.) $F = 147 \text{ N}$
- d.) $F = 49 \text{ N}$ e.) $F = 199 \text{ N}$
- 8.) a.) 
- b.) $F_N - F_g = 0$
 $F - F_f = ma$
- c.) $F_f = 10 \text{ N}$ d.) $\mu_k = 0.204$

- 9.) a.) 
- b.) $F_N - F_g = 0$ c.) $F_f = 30 \text{ N}$ d.) $a = 1.5 \frac{\text{m}}{\text{s}^2}$
- $F - F_f = ma$
- 10.) a.) 
- b.) $F_{N_2} - F_{g_2} = 0$ c.) $a = 4.0 \frac{\text{m}}{\text{s}^2}$ and $T = 16 \text{ N}$
- $F_{N_1} - F_{g_1} = 0$
 $T = m_2 a$
 $F - T = m_1 a$
- 11.) a.) 
- b.) $F_{N_2} - F_{g_2} = 0$ c.) $a = 1.55 \frac{\text{m}}{\text{s}^2}$ and $T = 16 \text{ N}$
- $F_{N_1} - F_{g_1} = 0$
 $T - F_{f_{k_2}} = m_2 a$
 $F - F_{f_{k_1}} - T = m_1 a$
- 12.) $F = 41.2 \text{ N}$
- 13.) a.) 
- b.) $F_{N_1} - F_{g_1} = 0$ c.) $a = 3.92 \frac{\text{m}}{\text{s}^2}$ and $T = 58.8 \text{ N}$
- $F_{g_2} - T = m_2 a$
 $T = m_1 a$
- 14.) a.) 
- b.) $F_{N_1} - F_{g_1} = 0$ c.) $a = 2.65 \frac{\text{m}}{\text{s}^2}$ and $T = 179 \text{ N}$
- $F_{g_2} - T = m_2 a$
 $T - F_{f_1} = m_1 a$
- 15.) a.) 
- b.) $F_{N_1} - F_{g_1} = 0$ c.) $a = 5.06 \frac{\text{m}}{\text{s}^2}$ and $T = 371 \text{ N}$
- $T - F_{g_2} = m_2 a$
 $F - T - F_{f_1} = m_1 a$
- 16.) a.) 
- b.) $F_{N_1} - F_{g_1} = 0$
 $F_{N_2} - F_{g_2} = 0$
 $F - F_{f_1} - F_{f_2} = m_1 a$
 $F_{1,2} - F_{f_2} = m_2 a$
- c.) $a = 4.19 \frac{\text{m}}{\text{s}^2}$ and $F_{1,2} = 49.2 \text{ N}$