

Name:

Date:

NOTE: The solutions assume $g = 10 \text{ m/s}^2$.

- (a) $W = F \cdot D = (50.0)(6.0) = \boxed{300 \text{ J}}$.

(b) $\Delta KE = W = \boxed{300 \text{ J}}$.

(c) $\Delta PE = \boxed{0}$.
- \boxed{C} . $W = F \cdot D = (10)(4.0) = \boxed{40 \text{ J}}$.
- $\boxed{39.8 \text{ N}}$. To maintain a constant velocity, F must equal to the friction force. $F = f = \mu mg = (0.663)(6.00)(10) = \boxed{39.8 \text{ N}}$.
- $\boxed{58.1 \text{ J}}$. $KE = \frac{1}{2}mv^2 = (0.5)(6.00)(4.4)^2 = \boxed{58.1 \text{ J}}$.
- $\boxed{8.76 \times 10^3 \text{ J}}$. $W = F \cdot D = (39.8)(220) = \boxed{8.76 \times 10^3 \text{ J}}$
- $\boxed{KE = 0.480 \text{ J}}$. $KE = \frac{1}{2}m_1v_1^2 = (0.5)(6.00)(0.4)^2 = \boxed{4.80 \times 10^{-1} \text{ J}}$.
- $\boxed{W = 82.3 \text{ J}}$. $W = F \cdot D = F \times v_1t = (68.6)(0.4)(3.00) = \boxed{8.23 \times 10 \text{ J}}$.
- $\boxed{PE = 47.1 \text{ J}}$. We need to find how much m_2 moves, which is the same as the distance moved by m_1 in 3 seconds. $PE = m_2gh = m_2gv_1t = (4.00)(10)(0.4)(3.0) = \boxed{4.80 \times 10 \text{ J}}$.