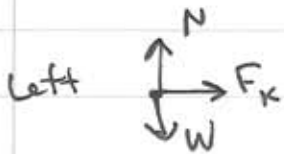
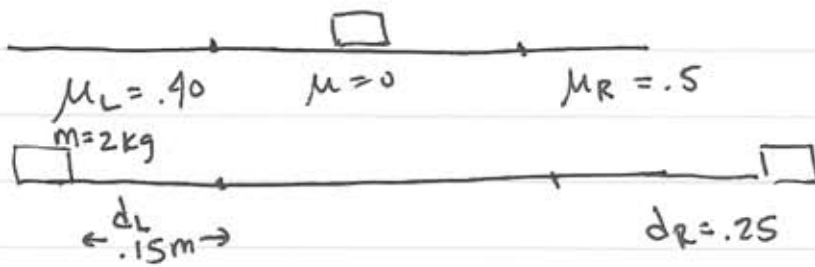


9-46



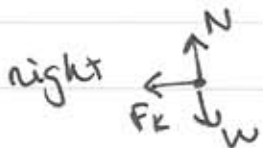
~~N~~  $N = mg = (2)(9.8) = 19.6$  Normal Force

$F_k = \mu_k N = 7.84$  Frictional F

$W_{\text{by friction}} = (7.84)(.15)$  work against friction  
 $= 1.176 \text{ Joule}$

$W_{\text{by friction}} = \frac{1}{2} m v^2$  kinetic energy lost to work against fric.

$1.176 = \frac{1}{2} (2) v_L^2$   $v_L = 1.084 \text{ m/s}$



$N = m_R 9.8$

$F_k = \mu N = (.5)(9.8) m_R$   
 $= 4.9 m_R$

- same on right side but  $m_R$  is variable

$W = F_k \cdot \Delta x = (4.9 m_R)(.25)$

~~1.225~~  $1.225 m_R$

$1.225 m_R = \frac{1}{2} m_R v_R^2$

$v_R = \sqrt{2 * 1.225} = 1.565 \text{ m/s}$

Before explosion      After explosion

conservation of momentum

$0 = m_L v_L + m_R v_R$

$0 = (2)(-1.084) + m_R (1.565)$

$m_R = 1.385 \text{ kg}$

$M = m_R + m_L = 2 + 1.385 = 3.385 \text{ kg}$