

## Answers

$$m_A = 3000 \text{ kg}$$

$$v_A = + 5.5 \text{ m/s}$$

$$m_B = 6000 \text{ kg}$$

$$v_B = - 2.5 \text{ m/s}$$

total momentum before =  $m_A v_A + m_B v_B = 1500 \text{ kg m/s}$  to the right  
or  $+ 1500 \text{ kg m / s}$  if to the right was positive

by the law of conservation of momentum

total momentum after = total momentum before =  $+1500 \text{ kg m / s}$

total momentum after =  $(m_A + m_B) v_{\text{AFTER}}$

$$v_{\text{AFTER}} = (1500 \text{ kg m/s}) / (m_A + m_B)$$

$$v_{\text{AFTER}} = 0.1667 \text{ [m/s]} \text{ to the right}$$

$$v_{\text{AFTER}} = + 0.1667 \text{ [m/s]}$$

$$v_{\text{AFTER}} = ( m_A v_A + m_B v_B ) / (m_A + m_B)$$

Image 499-collision1.png

