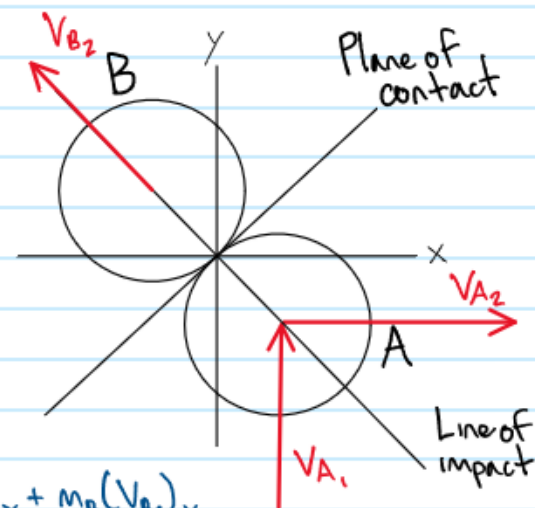


A  $m_A$  kg disk labelled (A) slides on a smooth table at  $v_{A1}$  m/s. Another disk labelled (B), with a mass of  $m_B$  kg is initially at rest. After the two disks collide, disk A has a velocity of  $v_{A2}$  m/s, parallel to the positive x-axis. What are the components of velocity of disk B?

given  $m_A, v_{A1}, m_B, v_{A2}$   
 find  $(v_{B2})_x, (v_{B2})_y$



Conservation of x Momentum

$$m_A \cancel{(v_{A1})_x} + m_B \cancel{(v_{B1})_x} = m_A (v_{A2})_x + m_B (v_{B2})_x$$

$$0 = m_A (v_{A2})_x + m_B (v_{B2})_x$$

$$\underline{(v_{B2})_x = -\frac{m_A (v_{A2})_x}{m_B}}$$

Conservation of y Momentum

$$m_A (v_{A1})_y + m_B \cancel{(v_{B1})_y} = m_A \cancel{(v_{A2})_y} + m_B (v_{B2})_y$$

$$m_A (v_{A1})_y = m_B (v_{B2})_y$$

$$\underline{(v_{B2})_y = \frac{m_A (v_{A1})_y}{m_B}}$$