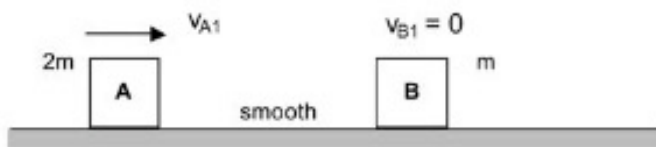
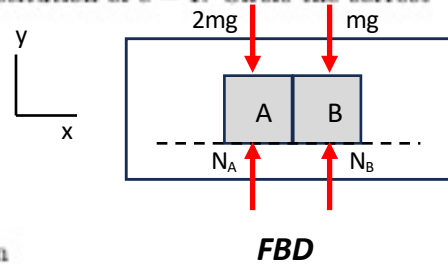


Quiz 6 – BONUS

Problem 6.1

Particle A strikes stationary particle B with a coefficient of restitution of $e = 1$. Circle the correct expression below for the velocity of A after impact.

- (a) $v_{A2} = 0$
- (b) v_{A2} is to the left
- (c) v_{A2} is to the right
- (d) Additional information is needed to answer this question



$$\Sigma F_x = 0 \Rightarrow 2mv_{A1} = 2mv_{A2} + mv_{B2}$$

$$e = 1 = \frac{v_{B2} - v_{A2}}{v_{A1}} \Rightarrow v_{B2} = v_{A1} + v_{A2}$$

$$\Rightarrow v_{A2} = +\frac{v_{A1}}{3}$$

Problem 6.2

Particles A and B are attached to a rigid bar with the bar being pinned to ground at point O. A bullet b strikes particle A and sticks. Consider a system made up of b, A, B and the rod. Circle all answers below that correctly describe this system during impact.

- (a) linear momentum is conserved $\Sigma \vec{F} \neq \vec{0}$
- (b) angular momentum about A is conserved $\Sigma \vec{M}_A \neq \vec{0}$
- (c) angular momentum about O is conserved $\Sigma \vec{M}_O = \vec{0}$
- (d) energy is conserved mechanical energy NOT conserved during impacts
- (e) none of the above

