

Ans: - (C)

Since momentum $(p) = m\vec{v}$

Hence, $\Delta\vec{p} = m\Delta\vec{v} = m(\vec{v} - \vec{u}) = m(-\vec{u} - \vec{u}) = -2m\vec{u}$

$$\Rightarrow \Delta\vec{p} = -0.15(6\hat{i} + 8\hat{j}) = -(0.9\hat{i} + 1.2\hat{j})$$

5) In the previous problem 4, the magnitude of momentum transferred during the hit is:

- (A) 0 (B) 0.75 kgm/s (C) 1.5 kgm/s (D) 1.4 kgm/s

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We have $\Delta\vec{p} = -(0.9\hat{i} + 1.2\hat{j})$

$$\begin{aligned}\Rightarrow |\Delta\vec{p}| &= \text{magnitude} = \sqrt{(0.9)^2 + (-1.2)^2} \\ &= \sqrt{0.81 + 1.44} \\ &= \sqrt{2.25} = 1.5 \text{ kgm/s}\end{aligned}$$