

Spins about vs centre of gravity.

Ans: → (C)

Uniform translatory motion occurs when all the particles of the body move with same velocity in same straight line.

④ A cricket ball of mass 150g has the initial velocity $\vec{u} = (3\hat{i} + 4\hat{j})$ m/s and a final velocity $\vec{v} = -(3\hat{i} + 4\hat{j})$ m/s after being hit. The change in momentum is (in kgms)

(y/3)

- (A) 0 (B) $-(0.45\hat{i} + 0.6\hat{j})$ (C) $-(0.9\hat{i} + 1.2\hat{j})$
(D) $-5(\hat{i} + \hat{j})$

Ans:- (C)

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

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

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

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