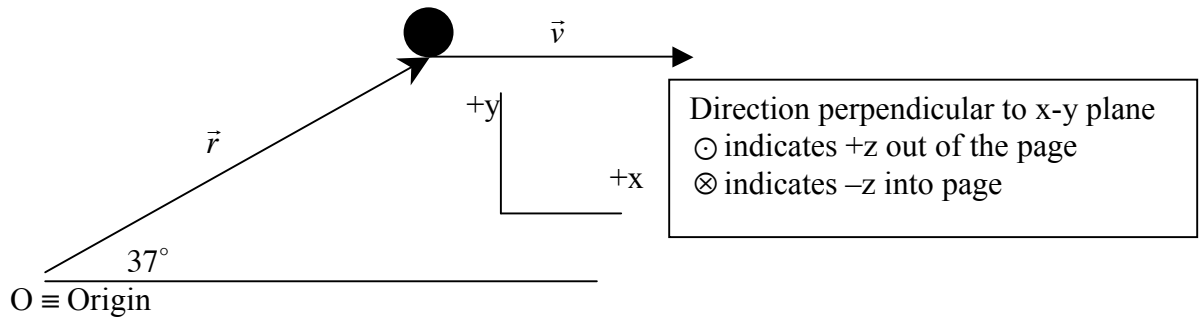


PHYS1211, QUIZ 7, Tuesday 26 November 2013

In question 1, 2 and 3, select the one correct answer.



In above diagram, a ball of mass 2kg, travels horizontally at 3 m/s. Its position from the origin (O) is $r = 5m$ at 37° , above the horizontal.

1. The angular momentum with respect to (wrt) the origin is:

- A) $\vec{L} = (30kg \cdot m^2 \cdot s^{-1})\hat{i}$ B) $\vec{L} = (-18kg \cdot m^2 \cdot s^{-1})\hat{k}$ C) $\vec{L} = (24kg \cdot m^2 \cdot s^{-1})\hat{k}$
D) $\vec{L} = (30kg \cdot m^2 \cdot s^{-1})\hat{k}$ E) None of the above

2. The torque due to gravity with respect to (wrt) the origin is:

- A) $\vec{\tau} = (-98kg \cdot m^2 \cdot s^{-2})\hat{j}$ B) $\vec{\tau} = (-78.4kg \cdot m^2 \cdot s^{-2})\hat{k}$ C) $\vec{\tau} = (58.8kg \cdot m^2 \cdot s^{-2})\hat{k}$
D) $\vec{\tau} = (-78.4kg \cdot m^2 \cdot s^{-1})\hat{k}$ E) $\vec{\tau} = (58.8kg \cdot m^2 \cdot s^{-1})\hat{k}$

3. The magnitude of the angular momentum will:

- A) Increase B) Decrease C) Zero