

Review (hints & answers)

QUESTIONS

1. a) For angular velocity, what is true everywhere on a spinning object?

b) Tangential velocity depends on their actual distance traveled. Who travels the greatest distance in the same time?

c) Think of your spinny ride - where should the rider be for the most centripetal accel & g's?
2. What's worse, going into a curve fast or slow? What's worse, a tight turn or a wide turn?
3. TANGENTIAL velocity.
4. Which one has the greater radius? What's true of tangential velocity at a greater radius?
5. If he didn't have this force, he would SLIDE out of the circle. As far as direction goes, we don't call it CENTRlpetal force for nothing.

PROBLEMS

1. a) angular velocity is radians per second. How many radians in 5 spins?

b) $V_T = (\text{ang } v)(\text{radius})$

c) $a_C = \frac{V_T^2}{r}$ (then divide by 10 to get g's)

d) For Ed's angular velocity, what is true everywhere on a spinning object? As far as tangential velocity, centripetal accel & g's are concerned, Ed never gets flung off no matter how fast he spins.
2. Calculate the centripetal force. There's only one force that holds things in orbit, so that must be equal to it.
3. Calculate the centripetal force. The weight of the person is the same both times.

But the normal force will adjust so that at the top, the centripetal force is the net force downward. At the bottom it is the net force upward.