

More Rotational Concepts

Answer the Following Questions

1. What is the difference between rotation and revolution?
2. Does an inward force or an outward force act on the clothes during the spin cycle of a washing machine? Explain.
3. When a car makes a turn, do seat belts provide you with a centripetal force or a centrifugal force?
4. Occupants in a single space shuttle in orbit feel weightless. Describe a scheme whereby occupants in a pair of shuttles (or even one shuttle and another massive object in orbit) would be able to use a long cable to continuously experience a comfortably normal earth-like gravity.
5. Where is the center of gravity of a donut?
6. Can an object have more than one center of gravity? Explain.
7. When you carry a heavy load – such as a bag of groceries – with one arm, why do you tend to hold your free arm out horizontally?
8. How will the support base of a chair change if one of the front legs is removed? Will the chair topple?
9. To balance automobile wheels, particularly when tires have worn unevenly, lead weights are fastened to their edges. Where should the CG of the balanced wheel be located?
10. Why do you throw a football so that it spins about its longitudinal axis when traveling through the air?
11. When is angular momentum conserved?
12. Which will have the greater acceleration down an incline – a hoop or a solid disk? Explain.
13. If you walked along the top of a fence, why would holding your arms out help you to balance?