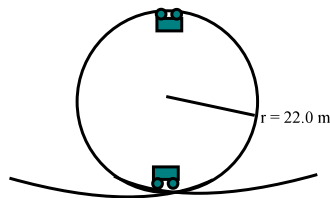


1. Calculate the centripetal acceleration of a car travelling at 85 km/hr around a circular track of radius 0.900 km.
2. What centripetal force is exerted on a 2.5 kg mass spinning in a circle of radius 1.5 m at 12.0 m/s?
3. A 5.0 kg mass is attached to a wire cable spinning in a vertical circle of radius 1.2 m. If the mass is spinning at 75 km/hr; calculate:
 - a) max tension
 - b) min tension
4. The end of a lawnmower blade rotates with a frequency of 75 Hz.
 - a) What is the centripetal acceleration if the blade is 32 cm long?
 - b) How fast is the tip of the blade moving?
5. A plane flying at 475 km/hr flies over the top of a circular path.
 - a) What must be the radius of the circle to just achieve weightlessness? (Normal force = 0)
 - b) What would be the normal force on a 75 kg pilot in the same plane if it fly the bottom of the circular path at the same speed?
6. A roller coaster ride makes a loop-the-loop as seen below. If the radius of the coaster is 22.0 m,
 - a) How fast must the coaster be going so that the people don't fall out?
 - b) At the bottom of the coaster, what is the normal force on a 75 kg person if the speed is 85 km/hr?



7. A car drives around a horizontal curve with a frictional coefficient of 0.58. What is the maximum safe speed for the car if the radius of the turn is 125 m?
8. A 2.5 g raisin is sitting on a turntable of radius 12 cm. If the turntable rotates at a frequency of 77 RPM, what frictional force is required to keep the raisin on the turntable?
9. A car is traveling at 120 km/hr around a frictionless turn of radius 115 m. What must be the angle of the bank to keep the car on the road?
10. A frictionless turn is banked at 35° to the horizontal. What is the maximum speed at which the car can stay on this road if the radius is 225m?

1	0.619 m/s ²		6a	14.7 m/s
2	240 N		6b	2636 N
3a	1852 N		7	26.7 m/s
3b	1754 N		8	0.0195 n
4a	71 061 m/s ²		9	45°
4b	151 m/s		10	39.3 m/s
5a	1776 m			
5b	1470 N			