Module 03 - Lesson 5
Nonuniform Circular Motion

Question 1: A merry-go-round with a diameter of 8.0 m is turning with a 6.0 s period. It speeds up gradually reaching a steady period of 4.0 s after 20 s. What is the final speed of a child located on the rim of the merry-go-round?

Question 2: An electric fan rotating at 1.06×10^2 rev/min is switched off. The fan blades have a diameter of 60 cm, and the blades have a constant negative acceleration of magnitude 1.00 m/s^2. How long does it take the fan to stop?

Problem: A car starts from rest and accelerates gradually to a velocity of 40 m/s in 13 s, while moving along a circle of radius 600 m. (a) Find the radial and tangential accelerations of the car. (b) What are the magnitude and direction of the acceleration of the car?