Topic 24: Exercises on Motion on a Banked Track
Level 1

1. A car has no tendency to slip when travelling at a speed of $v\ ms^{-1}$ round a section of track of radius $100\ m$ which is banked at an angle of 12^0. Taking $g = 9.80\ ms^{-2}$, find the speed of the car.

$14.4\ ms^{-1}$

2. A car has no tendency to slip when travelling at a speed of 30 ms^{-1} round a section of track of radius 200 m which is banked at an angle of θ^0. Find the angle of banking of the track, taking $g = 9.80\ ms^{-2}$.

24.7^0

3. An aircraft is flying at a speed of 100 ms^{-1} in a horizontal circle of radius 4 km. Taking $g = 9.80\ ms^{-2}$, find at what angle the aircraft is banked.

14.3^0