Circular Motion

Centripetal Force

Centripetal force is a force that makes an object follow a curved path: it always directs orthogonally to the velocity of the object, toward the instantaneous center of the curvature of the path.

T= a= a = m



Vertical Circular Motion



For object at the top (A), = m =mg +

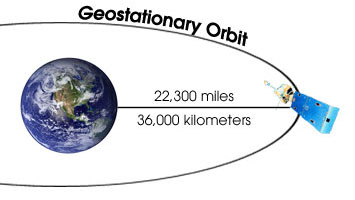
For object at the bottom (C), = m = - mg

Horizontal Circular Motion

Examples of circular motion include:

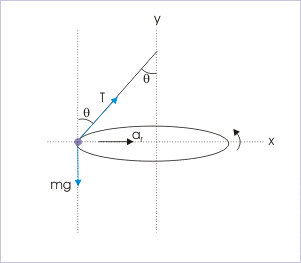
\*An artificial satellite orbiting the Earth at a constant height

= = m



M is the earth’s mass =6.0 x kg G=

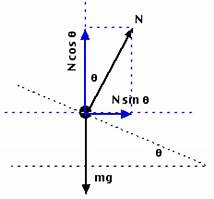
\*A stone that is tied to a rope and is being swung in circles



T cos(θ)= mg

T sin(θ) = = m

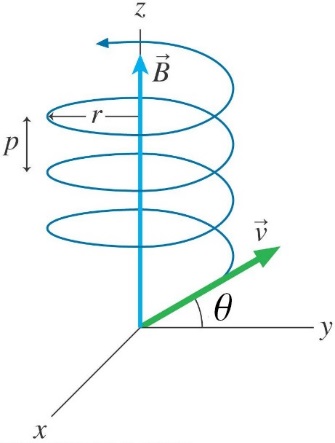
\*A car turning through a curve in a [race track](https://en.wikipedia.org/wiki/Race_track)



N sin(θ) =mg

N sin(θ) = = m

\*An electron moving perpendicular to a uniform [magnetic field](https://en.wikipedia.org/wiki/Magnetic_field)



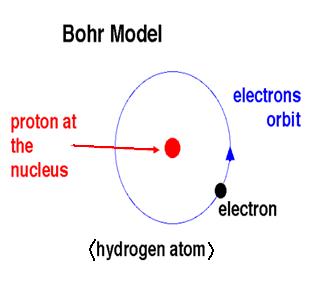
= V cos( = V sin(

= q V cos( x B =m

R =

Pitch = V sin( x T = V sin( X

\*Bohr Model



= k = m

Mass of electron = 9 x