CENTRIPETAL AND TANGENTIAL FORCES

Body moving in a straight line at constant velocity:

Body moving in a circular path with velocity of constant size:

Size of velocity vector is constant, but direction is changing.

⇒ This requires a force.
\[ F_{CP} = m \cdot \frac{v^2}{r} \]

\[ a_{CP} = \frac{F_{CP}}{m} = \frac{v^2}{r} \]

\( F_{CP} \) = “centripetal force”
If the size of the velocity vector changes:

\[ F_T = m \cdot \frac{\Delta v}{\Delta t} = m \cdot a_T \]

\[ F_T = \text{“tangential force”} \]