

$$5. \quad F = \frac{mv^2}{R} \quad F$$

$$a) \quad F' = \frac{3mv^2}{R}$$

$$\boxed{F' = 3F}$$

$$c) \quad F' = \frac{mv^2}{\left(\frac{R}{4}\right)}$$

$$F' = \frac{4mv^2}{R} \quad F$$

$$\boxed{F' = 4F}$$

$$b) \quad F' = \frac{m\left(\frac{v}{3}\right)^2}{R} \quad F \propto v^2$$

$$F' = \frac{m \frac{v^2}{9}}{R}$$

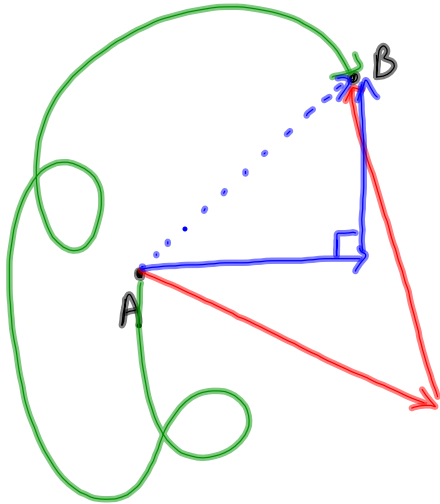
$$F' = \frac{1}{9} \frac{mv^2}{R} \quad F$$

$$\boxed{F' = \frac{1}{9} F}$$

$$d) \quad F' = (3)\left(\frac{1}{9}\right)(4)F$$

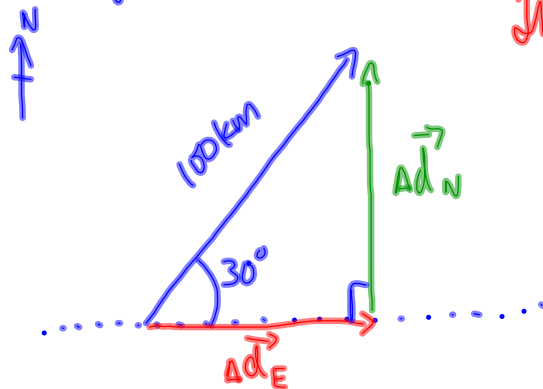
$$F' = \frac{4}{3} F$$

Components of Vectors



Sample Problem

The displacement of an airplane from its starting point is 100 km [E30°N]. Determine the components of its displacement in the easterly & northerly directions.



The Easterly component:

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 30^\circ = \frac{\Delta d_E}{100 \text{ km}}$$

$$\Delta d_E = 87 \text{ km}$$

Northerly Component

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 30^\circ = \frac{\Delta d_N}{100 \text{ km}}$$

$$\Delta d_N = 50 \text{ km}$$

TO DO:

- ① Displacement & Velocity
Sheet (FOP) * scale diagrams
- ② Components of Vectors (FOP)