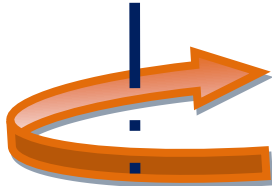


$$F_R = m \sqrt{g^2 + \frac{v^4}{R^2}}$$



$$\tan \alpha = \frac{F_C}{P} = \frac{mv^2}{mgR} = \frac{v^2}{gR} = \frac{w^2 R}{g}$$

