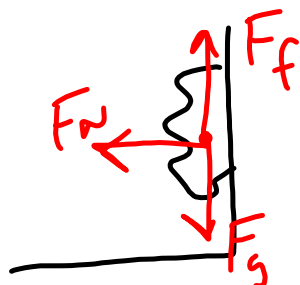


CENTRIFUGAL FORCES

Scenarios	Force acting as centripetal force
electron orbiting nucleus	electric
planet orbiting sun	gravitational
tether ball	tension
clothes in spinning washer	normal



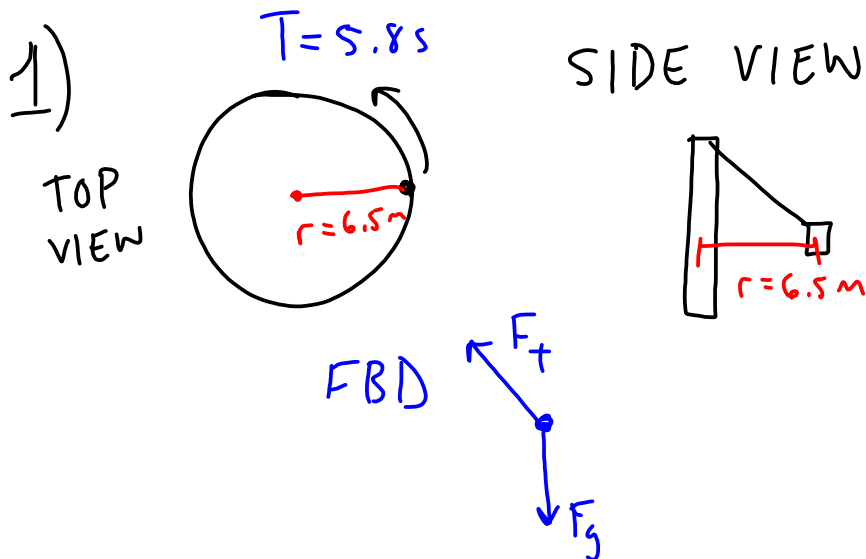
• Times

- Period (T) \rightarrow time for one complete revolution

- Frequency (f) \rightarrow set amount of time for object to complete cycles

$$T = \frac{1}{f}$$

CIRCULAR MOTION PROBLEMS



$$a) \quad v = \frac{2\pi r}{T} = \frac{2\pi(6.5 \text{ m})}{5.8 \text{ s}} = 7.04 \text{ m/s}$$

$$b) \quad a_c = \frac{v^2}{r} = \frac{(7.04 \text{ m/s})^2}{6.5 \text{ m}} = 7.62 \text{ m/s}^2$$

$$c) \quad F_{Tx} = ma_c = (80 \text{ kg})(7.62 \text{ m/s}^2) = 610 \text{ N}$$

$$F_{Ty} = F_g = ma_g = (80 \text{ kg})(9.8 \text{ m/s}^2) = 784 \text{ N}$$



$$F_T = \sqrt{F_{Tx}^2 + F_{Ty}^2}$$

$$= 993 \text{ N}$$