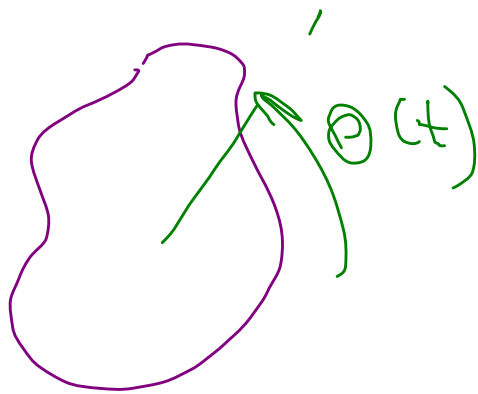


Rotations (simple)

$\theta$  is in radians

(pos or neg)

How fast is it turning



$$\lim_{\Delta t \rightarrow \text{small}} \frac{\Delta \theta}{\Delta t}$$

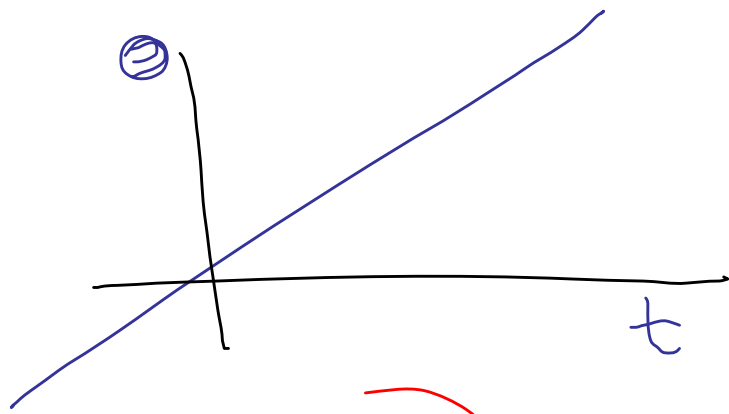
= instantaneous ang. velocity

$$= \omega$$

Units:  $\text{rad/s}$

$$= \frac{d\theta}{dt}$$

$$= 1/s$$

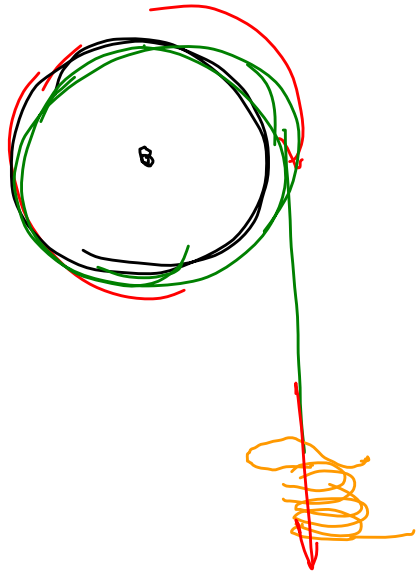


$\omega$  constant.

$$\frac{\Delta v}{\Delta t} = a$$

If  $\omega$  changes w/ time:

Period  $\Delta t$

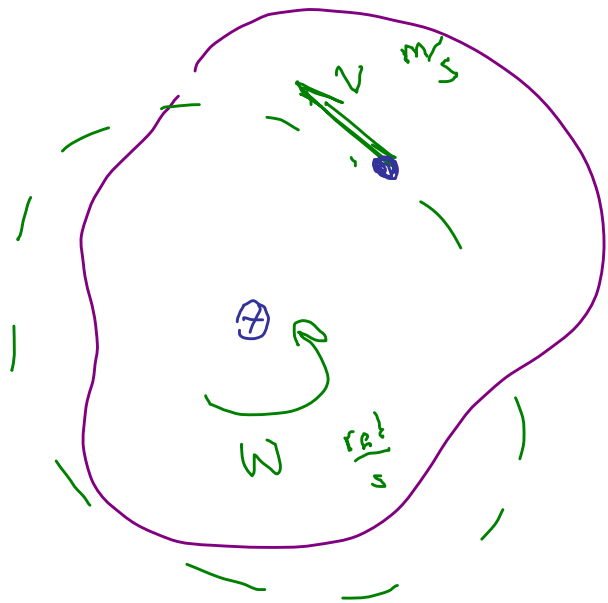


$$\frac{\Delta \omega}{\Delta t} = \text{angular acceleration}$$

$$= \alpha$$

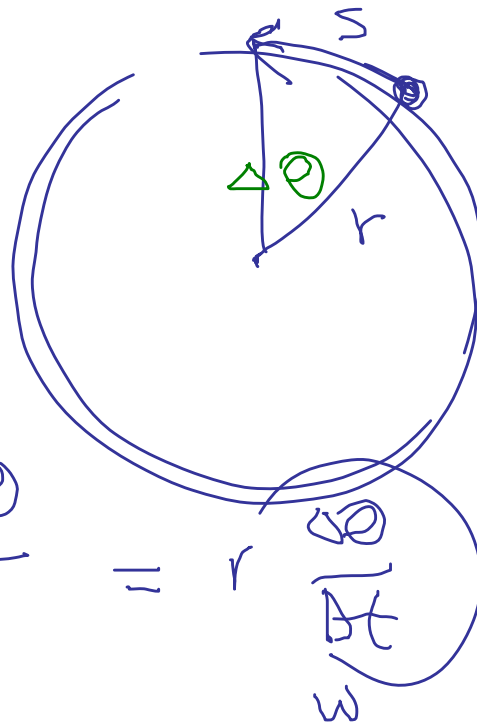
Instantaneous angular acceleration =  $\alpha = \frac{d\omega}{dt}$

p.156-157



Consider one point on object  
Velocity is tangential

$\theta$  is in radians



$$s = r \Delta \theta$$

Speed of a point

$$V = \frac{s}{\Delta t} = \frac{r \Delta \theta}{\Delta t} = r \frac{\Delta \theta}{\Delta t} = r \omega = r \omega$$

= linear speed.

$$V = r \omega$$

$\text{m/s}$        $\text{m}$        $\text{rad/s}$

