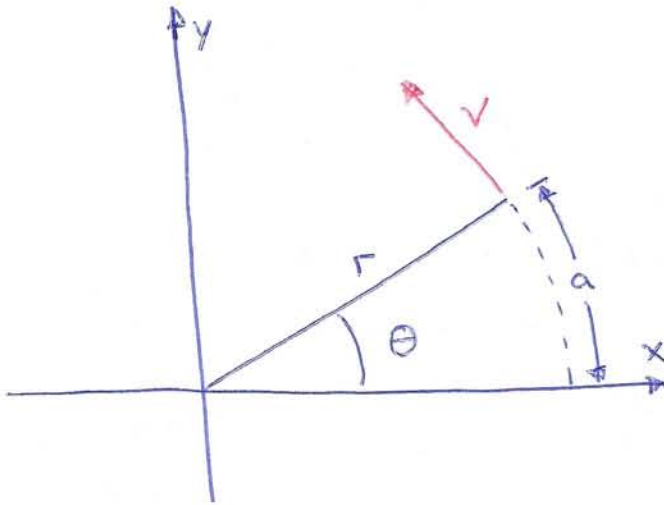


Kinematics (circular motion)



$$\theta = \frac{a}{r}$$

$$\frac{d\theta}{dt} = \omega = \frac{v}{r}$$

angular velocity

$$\frac{d\omega}{dt} = \alpha = \frac{a}{r}$$

angular acceleration

Kinematic equations for linear motion

$$\vec{x} = \vec{x}_0 + \vec{v}_0 t + \frac{1}{2} \vec{a} t^2$$

$$\vec{v}^2 = \vec{v}_0^2 + 2 \vec{a} (\Delta \vec{x})$$

$$\vec{x} = \vec{x}_0 + \left(\frac{\vec{v} + \vec{v}_0}{2} \right) t$$

$$\vec{v} = \vec{v}_0 + \vec{a} t$$

Kinematic equations for circular motion

$$\theta = \theta_0 + \omega_0 t + \frac{1}{2} \alpha t^2$$

$$\omega = \omega_0 + 2 \alpha (\Delta \theta)$$

$$\theta = \theta_0 + \left(\frac{\omega + \omega_0}{2} \right) t$$

$$\omega = \omega_0 + \alpha t$$