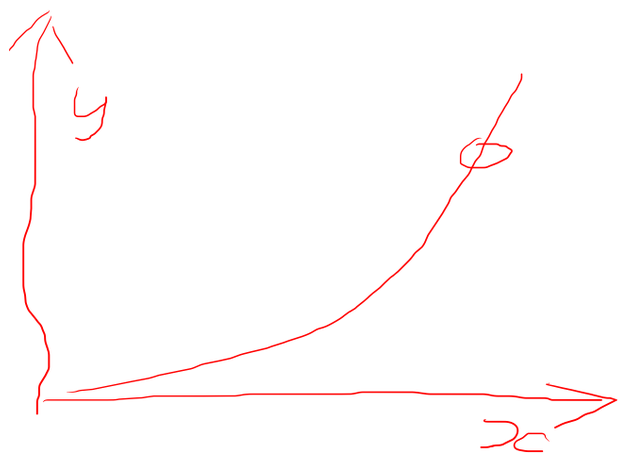
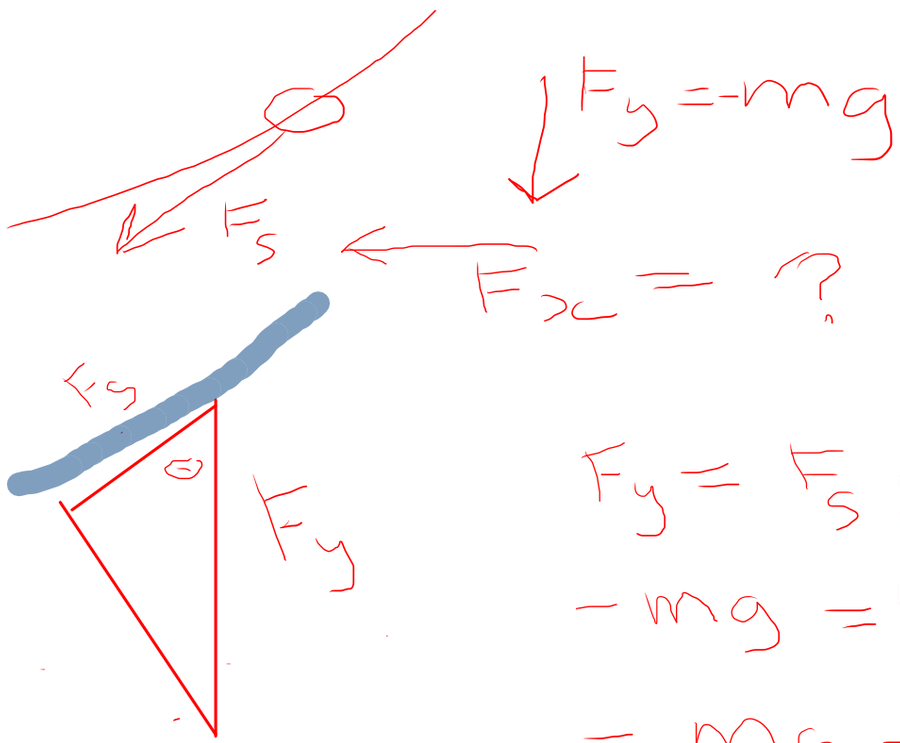
Motion of Bead on Wire

$$m\ddot{x}(1+4b^2x^2)+4m\dot{x}^2xb^2=-2mgbx$$

$$y=bx^2$$



Clasical Method



$$F_y = F_s \sin\theta$$

$$-mg = F_s \sin\theta$$

$$-mg = F_s \frac{dy}{ds}$$

$$F_s = F_y \cos\theta$$

$$F_s = F_y \frac{ds}{}$$