



$$y = \sin(Ax)$$

$$\dot{y} = \frac{dy}{dt} = A \cos(Ax) \frac{dx}{dt}$$

$$\ddot{y} = \frac{d^2y}{dt^2} = -A^2 \sin(Ax) \left(\frac{dx}{dt}\right)^2 + A \cos(Ax) \frac{d^2x}{dt^2}$$

$$y, \ddot{y} = 0 \text{ at } x = \frac{\pi}{A}$$

$$\dot{y} = 0 \text{ at } x = \frac{\pi}{2A}$$