

B.P. 1.6

- Find period of oscillation



↑ x equilibrium

$$m \frac{d^2x}{dt^2} = \text{restoring force} = - \left(\gamma \frac{A^2 P_0}{V_0} \right) x$$

$$\frac{d^2x}{dt^2} + \frac{\gamma A^2 P_0}{m V_0} x = 0$$

$$\omega_0^2 = \frac{\gamma A^2 P_0}{m V_0}$$

$$T = \frac{2\pi}{\omega_0} = 2\pi \sqrt{\frac{m V_0}{\gamma A^2 P_0}}$$

Restoring force: