$$F(t) = F_0 \operatorname{sen}(\omega \cdot t)$$

$$m\ddot{x} = -\beta x + F_0 \operatorname{sen}(\omega t)$$
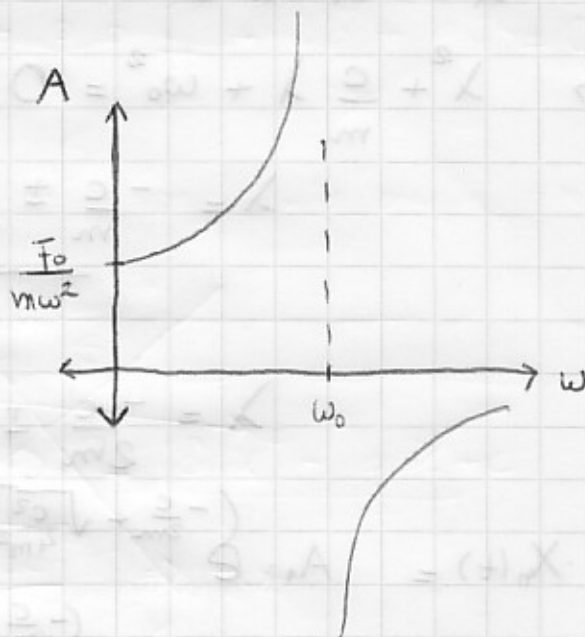
$$X_p(t) = A \operatorname{sen}(\omega t)$$
$$\dot{X}_p(t) = A\omega \cos(\omega t)$$
$$\ddot{X}_p(t) = -A\omega^2 \operatorname{sen}(\omega t)$$

$$\Rightarrow \quad -A\omega^2 = -\omega_0^2 A + \frac{F_0}{m}$$

$$\Rightarrow \quad \boxed{A = \frac{F_0/m}{(\omega_0^2 - \omega^2)}}$$

$$\boxed{x(t) = B\cos(\omega t + \phi) + \frac{F_0}{m(\omega_0^2 - \omega^2)} \operatorname{sen}(\omega t)}$$