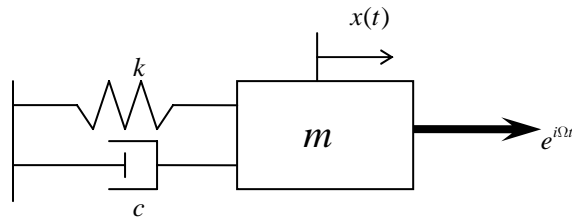


HW1 : Solution



$$m\ddot{x} + c\dot{x} + kx = e^{i\Omega t}$$

Phase lag between [input] and [output]

No Damping $(c = 0)$	Damping $(c \neq 0)$	No damping & renonce $\Omega = \omega = \sqrt{\frac{k}{m}}$ $(c = 0)$
$\phi = 0, \pi, 2\pi \dots$	$\phi \neq 0, \pi, 2\pi \dots$	$\phi = \frac{3}{2}\pi$
Amplitude change : $\frac{1}{8}$ Phase lag : $\phi = \pi$	Amplitude change : $\frac{1}{\sqrt{73}}$ Phase lag : 	Amplitude change : $\frac{t}{2\omega}$ Phase lag : $\phi = \frac{3}{2}\pi$