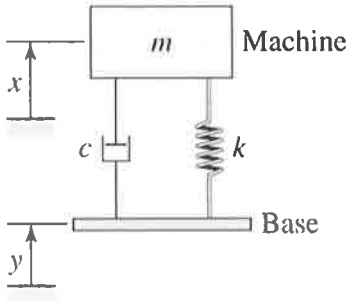
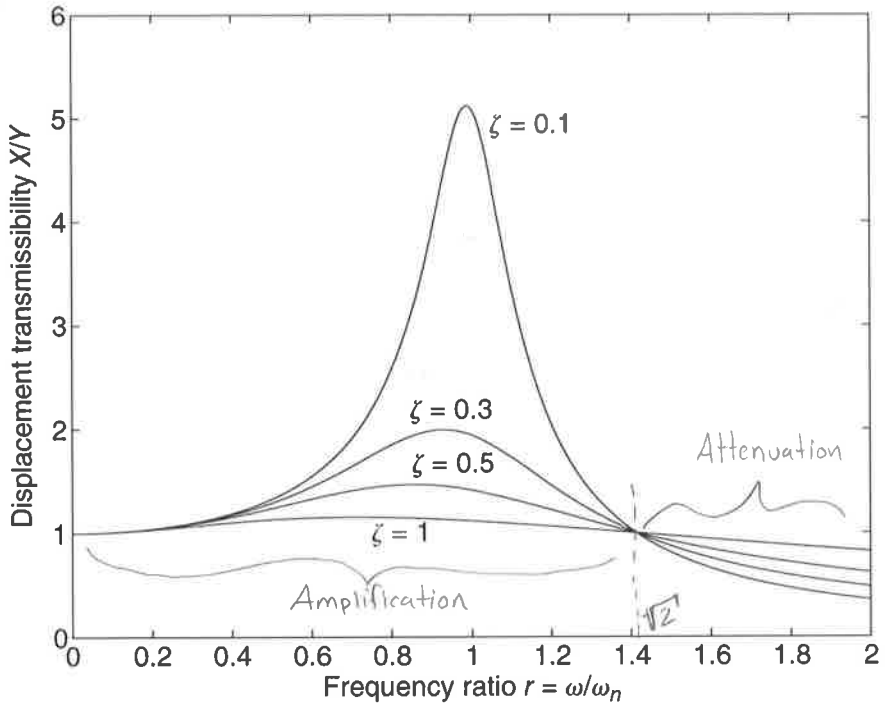
Displacement and Force Transmissibility

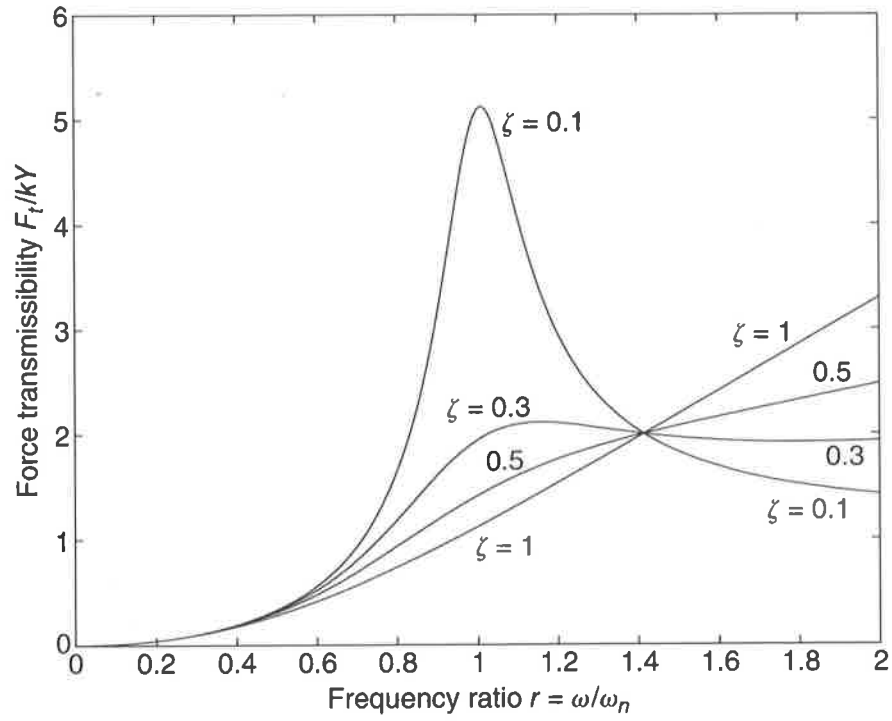




Displacement Transmissibility

$$\frac{X}{Y} = \sqrt{\frac{4\zeta^2 r^2 + 1}{(1-r^2)^2 + 4\zeta^2 r^2}}$$

- Maximum base motion is transfered to mass around $r=1$ (at resonance)
- Below $r=\sqrt{2}$, the base motion is amplified
- Above $r=\sqrt{2}$, the base motion is attenuated
- As ζ decreases, the potential amplification increases
- As r increases beyond $\sqrt{2}$, the displacement transmissibility decreases



Force Transmissibility

$$\frac{F_t}{KY} = r^2\sqrt{\frac{4\zeta^2 r^2 + 1}{(1-r^2)^2 + 4\zeta^2 r^2}}$$

- For small values of ζ, force transmissibility decreases above $r=\sqrt{2}$
- For large values of ζ, force transmissibility increases with increasing r.
- For small values of ζ, a peak in force transmissibility is found near $r=1$.