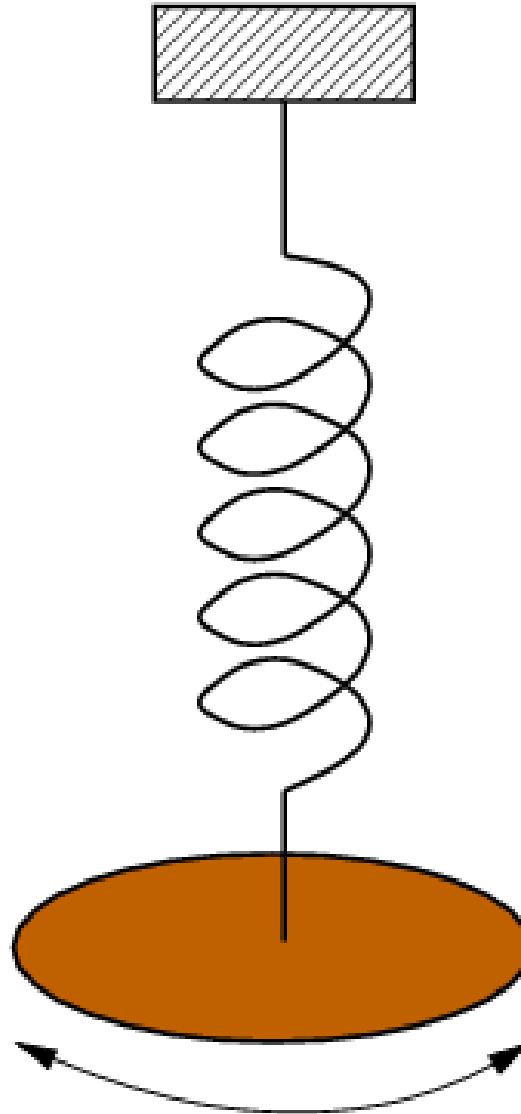
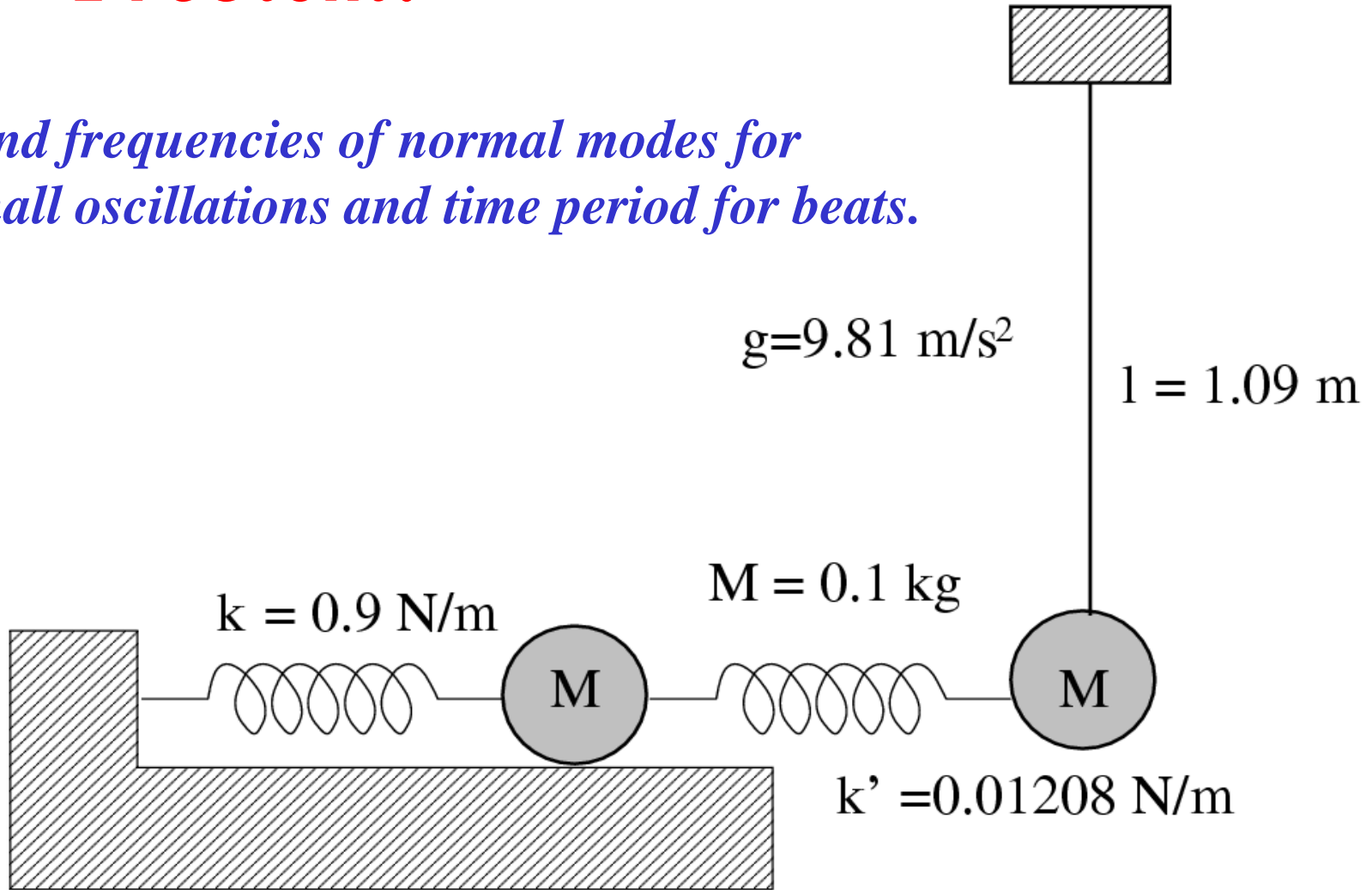


The Wilberforce pendulum



Problem:

Find frequencies of normal modes for small oscillations and time period for beats.

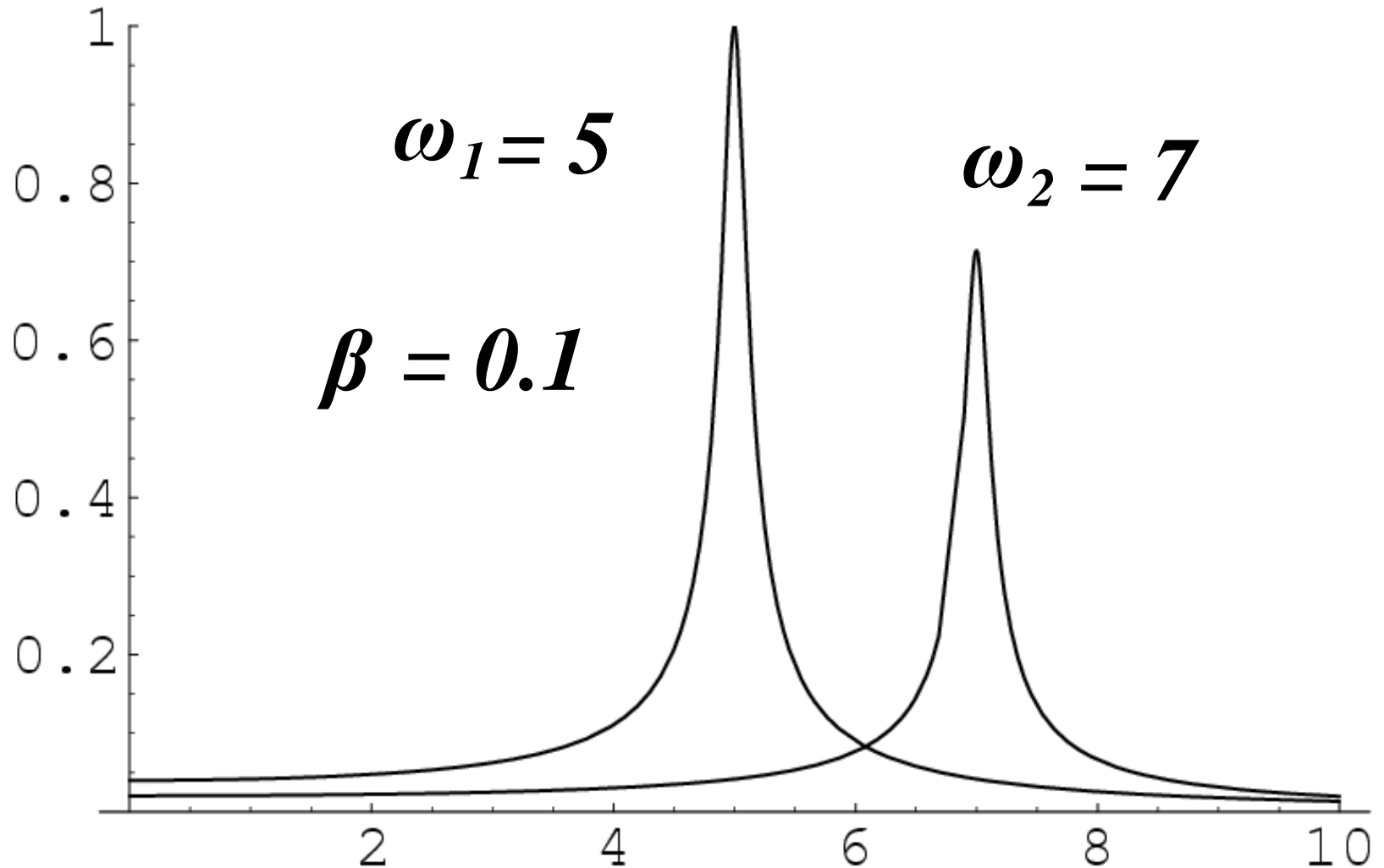


Problem:

Damped forced coupled oscillations

A force $F_0 \cos \omega t$ is applied on one of the masses. Write down the equations of motion and try to solve the system qualitatively using your knowledge of forced oscillations and coupled oscillations.

Amplitude resonance for normal modes



$$\left| \frac{A_2}{A_1} \right|^2 = \frac{(\omega_2^2 - \omega_1^2)^2}{(\omega_2^2 + \omega_1^2 - 2\omega^2)^2 + 16\beta^2\omega^2}$$
$$\approx \frac{(\omega_2^2 - \omega_1^2)^2}{(\omega_2^2 + \omega_1^2 - 2\omega^2)^2}$$

Amplitude ratio: $|A_2/A_1|$

Filter

