

This is a take home quiz. Please work out the solutions to the problems below, neatly write up your solutions, and upload your solutions to Canvas. You may use your class notes, your textbook and/or your calculator to help you, but **you are expected to do your own work!**

Due: Please upload your solution to Canvas before Thursday at 11:59PM

1. Suppose we have the undamped, periodically forced system: $y'' + 2y = \cos(\omega t)$.

- (a) If $\omega = 1.3$, give the amplitude and frequency for one “beat”.
- (b) Going back to the general ω , find the value of ω for which the system will exhibit **resonance**.

2. Solve: $y'' + y' + 3y = \cos(\omega t)$.

- (a) If $\omega = 1$, then compute the amplitude and phase angle δ of the particular solution (only the particular solution).
- (b) Going back to the general ω , find the value that will maximize the amplitude of the particular solution.