

EE 2240
Homework Problem #57

A certain physical system is described by the 2nd-order ordinary differential equation

$$\frac{d^2x}{dt^2} + 10\frac{dx}{dt} + 25x = 0.$$

- (a) Determine the natural frequency, ω_n , of the system.
- (b) Determine the damping ratio, ζ , of the system.
- (c) Classify the system as *undamped*, *underdamped*, *critically damped* or *overdamped*.