

Problem

1. For each of the following spring-mass equations, determine whether the system is undamped, underdamped, critically damped, or overdamped and whether it is forced or unforced.
 - (a) $2y'' + 4y' + 6y = 0$ (underdamped, unforced)
 - (b) $y'' + 5y = 0$ (free undamped)
 - (c) $3y'' + y' + \frac{1}{2}y = \sin(t)$ (underdamped, forced)
 - (d) $y'' + 4y' + 4y = 1$ (critically damped, forced)
 - (e) $2y'' + 10y' + y = e^t$ (overdamped, forced)
 - (f) $100y'' + 10y' + 0.02y = 0$ (overdamped, free)

Reading

Pages 152-156.