Test 2 Topics

MAT 275 Modern Differential Equations
Test 2 Fri 10/28 in class

Be sure to turn in any missing HW for up to 50% credit at the time of the test. Remember HW counts 20% of the grade.

- HWs 5–7
- phase diagrams & solution curves/direction fields
- Memorize solution of \( \frac{dy}{dt} = ay \): \( y(t) = Ae^{at} \)
- Memorize solution of \( \frac{d^2y}{dt^2} + \omega^2 y = 0 \): \( y(t) = A\cos(\omega t) + B\sin(\omega t) = C\cos(\omega t - \delta) \)
- Memorize Euler’s formula: \( e^{i\omega t} = \cos(\omega t) + i\sin(\omega t) \)
- \( y = e^{rt} \) method for \( ay'' + by' + cy = 0 \) (including complex roots & repeated roots)
- [Wronskian \( W(t) \) & linear independence]
- *method of undetermined coefficients* for inhomogeneous \( ay'' + by' + cy = g(t) \)
- harmonic oscillator (under, critically, & over damped)
- forced harmonic oscillator & resonance
- boundary value problems