

# Introduction to Differential Equations – Math 286 X1

Fall 2009

## Homework 5 — due October 7

1. Solve

$$y'' - 3y' + 2y = 4e^{3x}, \quad y(0) = 1, \quad y'(0) = 2.$$

2. Solve

$$y'' - 3y' + 2y = e^{2x}, \quad y(0) = 1, \quad y'(0) = -1.$$

3. Solve

$$y'' - 3y' + 2y = 4 \sin(x), \quad y(0) = 2, \quad y'(0) = 2.$$

4. Solve

$$y'' - 4y' + 4y = e^x, \quad y(0) = 1, \quad y'(0) = 3.$$

5. Solve

$$y'' - 4y' + 4y = 5e^{2x}, \quad y(0) = 3, \quad y'(0) = 2.$$

6. Solve

$$y'' - 4y' + 4y = -4e^x \sin(x), \quad y(0) = 1, \quad y'(0) = 2.$$

7. Solve

$$y'' + 2y' + 2y = 2e^x, \quad y(0) = 2, \quad y'(0) = 1.$$

8. Solve

$$y'' + 2y' + 2y = -\sin(x), \quad y(0) = 1, \quad y'(0) = -2.$$

9. Solve

$$y'' + 2y' + 2y = 3e^{-x} \cos(x), \quad y(0) = 0, \quad y'(0) = -1.$$

10. Solve

$$y'' + 2y' + 2y = 3x - 4, \quad y(0) = 0, \quad y'(0) = 1.$$