Math 54 Homework 8
Due Tuesday August 6

Solve the following differential equations:

1. $\frac{d^2 f}{dx^2} - \frac{df}{dx} - 2f = 0$

2. $\frac{d^2 f}{dx^2} - \frac{df}{dx} - 2f = 0, \ f(0) = 0, \ f'(0) = 1$

3. $\frac{d^2 f}{dx^2} - 4\frac{df}{dx} + 3f = 0$

4. $\frac{d^2 f}{dx^2} - 4\frac{df}{dx} + 3f = 0, \ f(0) = 0, \ f'(0) = 0$

5. $\frac{d^2 f}{dx^2} - 6\frac{df}{dx} + 10f = 0, \ f(0) = 0, \ f'(0) = 2$

6. $\frac{d^2 f}{dx^2} - 2f = e^x$

7. $\frac{d^2 f}{dx^2} - 3\frac{df}{dx} + 2f = \cos(x)$

8. $\frac{d^2 f}{dx^2} - 4f = x^2 + x + 1$

9. $\frac{d^2 f}{dx^2} - 6\frac{df}{dx} + 10f = 5x$

10. $\frac{d^2 f}{dx^2} - 6\frac{df}{dx} + 10f = 5x, \ f(0) = \frac{3}{10}, \ f'(0) = \frac{3}{2}$

11. $\frac{d^2 f}{dx^2} + \frac{df}{dx} = \sin(3x)$

12. $\frac{d^2 f}{dx^2} - 2\frac{df}{dx} - 2f = x^2, \ f(0) = -1, \ f'(0) = 0$