

Due Thursday, March 6 at the beginning of class.

1. Find the general solution of the following equations:

(a) $y'' - y' - 12y = e^{4t}$.

(b) $y'' + 3y' + 2y = 6x + 1$.

(c) $y'' - 9y' = 36x + 5$.

(d) $y'' - 3y' + 2y = e^t \sin t$.

(e) $y'' + 4y = \sin t - \cos t$

2. Determine the form of a particular solution for the differential equations.

(a) $y'' + y = \sin t + t \cos t + e^t$.

(b) $y'' - y' - 2y = e^t \cos t - t^2 + t + 1$.

3. Find the general solution of the differential equation using the method of variation of parameters.

(a) $y'' + 4y = \tan(2t)$

(b) $y'' - 2y' + y = \frac{e^x}{x}$