Al-Mustansiriyah University/ Faculty of Engineering   Mathematics Lecture

Mechanical Engineering Dept.   Dr. Hayder Mohammad 2nd class

Homework/ Second order linear differential equations

Find the general solution for the differential equation:

1- $y'' - 4y = 1 + 65e^t \cos(2t)$

2- $y'' - 8y' + 16y = 6xe^{4x}$

3- $y'' + 3y' + 2y = x^2$

4- $y'' - 3y' + 2y = 2t^2 + e^t + 2te^t + 4e^{3t}$

5- $y'' + 4y = \tan(2t) + e^{3t}$

6- $y'' + 4y = \cot(t)$

7- $y'' - 2y' + y = \dfrac{e^x}{x^2}$

8- $y'' - 2y' + y = \dfrac{e^x}{1+x^2}$

9- $y'' - 9y = \dfrac{9x}{e^{3x}}$

10- $y'' + 2y' + y = e^{-t}\ln(t)$

11- $y'' - y' = e^x + e^{-x} + x^2$