

Homework/ Second order linear differential equations

Find the general solution for the differential equation:

1- $y'' + 4y = 5t^2 e^t$

2- $y'' - y' = \cos(x) + 1$

3- $y'' - 4y = 8x^2 + 2x \cos(x)$

4- $y'' - 3y' - 4y = 3e^{2x} + 2 \sin(x) - 8e^x \cos(2x)$

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

6- $y'' - y' + y = 2 \sin(3x)$

7- $y'' - 2y' + y = \frac{e^x}{1+x^2} + 3e^x$

8- $y'' + 4y' = 4 \sec^2(2x)$

9- $y'' - 6y' + 9y = \frac{e^{3x}}{x^3}$