

Q1. Given $y'' + y = \cos x$ and the solution of the associated homogeneous part is $y = A \cos x + B \sin x$. Use method of method of variation of parameters to give particular solution.

Q2. The solution of the associated homogeneous part of $y'' + y = 1 + x + x^2$ is given by $y = A \cos x + B \sin x$. Use method of undetermined coefficients to guess the particular solution of the differential equation.

Q3. Given $y'' + y = x \cos x$ and the solution of the associated homogeneous part is $y = A \cos x + B \sin x$. Use method of method of variation of parameters to give particular solution. Use method of undetermined coefficients to guess the correct particular solution.