Class 10– Solution of differential equations by the method of Variation of parameters

Solve the following Differential Equations by the method of variation of parameters

1. $y'' + y = \tan x$

Answer : $y = a \cos x + b \sin x - \cos x \log(\sec x + \tan x)$

2. $y'' - 2y' + 2y = e^x \tan x$

Answer : $y = a \cos x + b \sin x + \dfrac{\cos x}{8} + \dfrac{x \sin x}{4} - \dfrac{x^2 \cos x}{4}$

3. $y'' - y = e^{-2x} \sin e^{-x}$

Answer : $ae^x + be^{-x} - (\sin e^{-x} + e^x \cos e^{-x})$

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