

MTH 3331 - Practice Test #3a

SPRING 2001

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Name _____

Instructions. Show clearly how you arrive at your answers.

1. Solve, first using Undetermined Coefficients, then using Variation of Parameters:

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

2. Find the general solution of the equation: $y'' - 2y' + y = \frac{1}{x}e^x$; $x > 0$

3. Find the general solution of the equation $y'' + 8y' + 17y = x^2 + 3x + 2$

Answers

4. $y = \frac{1}{2}x + C_4x^{-1} + C_3x^{-1} \ln(x)$ is our solution.

5. $y = -xe^x + x \ln(x) e^x + C_4e^x + C_3xe^e$ is the solution

6. $y = y_h + y_p = e^{-4x} (A \cos(x) + B \sin(x)) + \frac{1}{17}x^2 + \frac{35}{289}x + \frac{264}{4913}$