Name Student ID

MATH 3503 - Winter 2025
Quiz 3

February 18, 2025

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1. When you have a repeated value of r when solving the characteristic equation of a second order ODE, why do you have to multiply the first solution by a power of x in order to get the second solution? What are you trying to ensure? (3 Marks)

2. Why do you check if an equation is exact by checking if $\frac{\partial M}{\partial y}$ is equal to $\frac{\partial N}{\partial x}$? Think about where M and N come from. (3 Marks)

3. Find the fundamental matrix for the system of equations $Y' = AY$, where A is given by $\begin{bmatrix} 1 & 1 \\ -1 & 0 \end{bmatrix}$. You will need to solve this system first. (4 Marks)