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70_C

Daffodil International University

Quiz-2

ID: Name: Time: 35mins Set_B

Q1. Solve the Homogeneous Differential Equation $\frac{dy}{dx} = \frac{x^2+y^2}{2xy}$

Q2. Solve the Differential Equation $\frac{dy}{dx} + 2xy = 2xe^{x^2}$

Q3. The number of unanswered Emails E(t) in a company's support queue changes based on incoming customer volume and team resolution speed. The rate of accumulation is modeled as: $dE/dt = \lambda - \mu E$ Where λ=40 emails/hour (incoming rate) and μ=0.3 per email per hour (processing rate). Given an initial morning backlog of E(0)=15 emails, find the size of the backlog queue after 5 hours.