

Quiz NO 1

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Class: BSCS 4th semester.

Incomplete

$$(3x^2y + e^y)dx + (x^3 + xe^y - 2y)dy = 0, y(0) = 1$$

Solve

$$M = 3x^2y + e^y, N = x^3 + xe^y - 2y$$

$$\frac{\partial f}{\partial x} = M = 3x^2y + e^y, \quad \frac{\partial f}{\partial y} = N = x^3 + xe^y - 2y$$

$$\frac{\partial f}{\partial y} = 3x^2y + e^y, \quad \frac{\partial f}{\partial x} = x^3 + xe^y - 2y$$
$$= 3x^2 + e^y = 3x^2 + e^y$$

Solution is stable

$$L.H.S = R.H.S$$

$$3x^2 + e^y = 3x^2 + e^y$$

$$\int \frac{\partial f}{\partial x} = \int 3x^2y + e^y dx$$

$$= \frac{3x^3y + e^y}{3}$$

$$f(x) = x^3y + e^y - h(y)$$