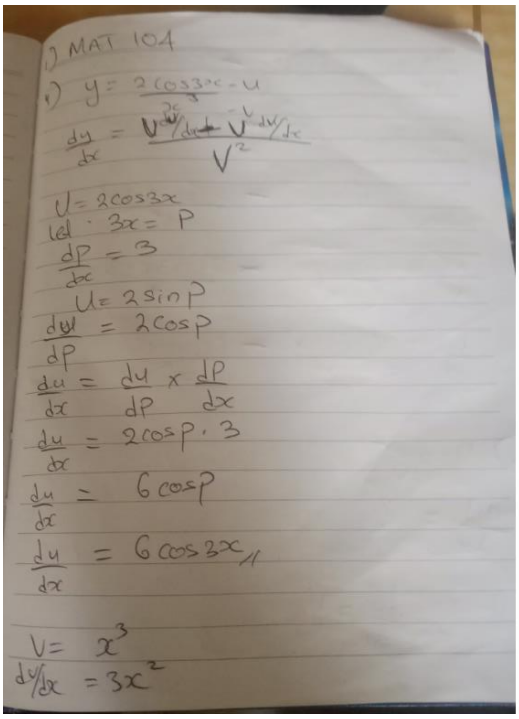
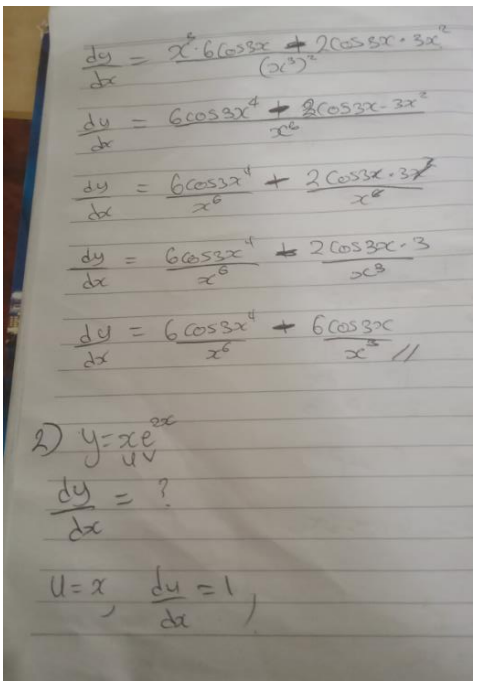
UBANI, JOSEPH IKECHUKWU

COMPUTER ENGINEERING

19/ENG02/066

MAT 104





$$\frac{dy}{dx} = \frac{x^4 \cdot 6\cos 3x + 2\cos 3x \cdot 3x^2}{(x^3)^2}$$

$$\frac{dy}{dx} = \frac{6\cos 3x^4 + 3\cos 3x \cdot 3x^2}{x^6}$$

$$\frac{dy}{dx} = \frac{6\cos 3x^4}{x^6} + \frac{2\cos 3x \cdot 3x^2}{x^6}$$

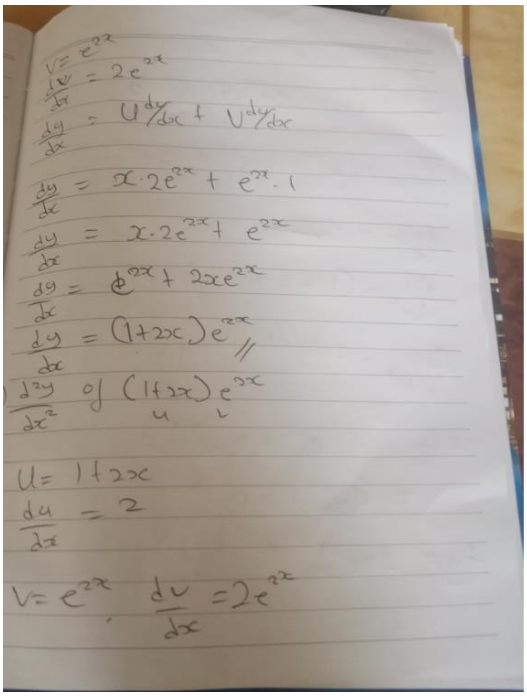
$$\frac{dy}{dx} = \frac{6\cos 3x^4}{x^6} + \frac{2\cos 3x \cdot 3}{x^3}$$

$$\frac{dy}{dx} = \frac{6\cos 3x^4}{x^6} + \frac{6\cos 3x}{x^3} //$$

2) $y = \underset{u}{x}\underset{v}{e^{2x}}$

$\frac{dy}{dx} = ?$

$u = x, \quad \frac{du}{dx} = 1$



$v = e^{2x}$

$\frac{dv}{dx} = 2e^{2x}$

$\frac{dy}{dx} = u\frac{dv}{dx} + v\frac{du}{dx}$

$\frac{dy}{dx} = x \cdot 2e^{2x} + e^{2x} \cdot 1$

$\frac{dy}{dx} = x \cdot 2e^{2x} + e^{2x}$

$\frac{dy}{dx} = e^{2x} + 2xe^{2x}$

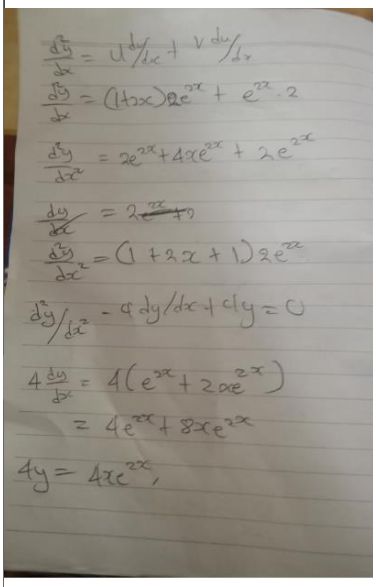
$\frac{dy}{dx} = (1+2x)e^{2x} //$

$\frac{d^2y}{dx^2}$ of $\underset{u}{(1+2x)}\underset{v}{e^{2x}}$

$u = 1+2x$

$\frac{du}{dx} = 2$

$v = e^{2x}, \quad \frac{dv}{dx} = 2e^{2x}$



$\frac{d^2y}{dx^2} = u\frac{dv}{dx} + v\frac{du}{dx}$

$\frac{d^2y}{dx^2} = (1+2x)2e^{2x} + e^{2x} \cdot 2$

$\frac{d^2y}{dx^2} = 2e^{2x} + 4xe^{2x} + 2e^{2x}$

$\frac{dy}{dx} = 2$

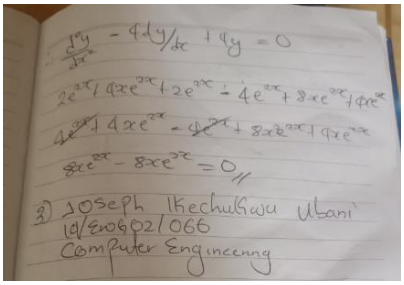
$\frac{d^2y}{dx^2} = (1+2x+1)2e^{2x}$

$d^2y/dx^2 - 4\,dy/dx + cy = 0$

$4\frac{dy}{dx} = 4(e^{2x} + 2xe^{2x})$

$= 4e^{2x} + 8xe^{2x}$

$4y = 4xe^{2x},$



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