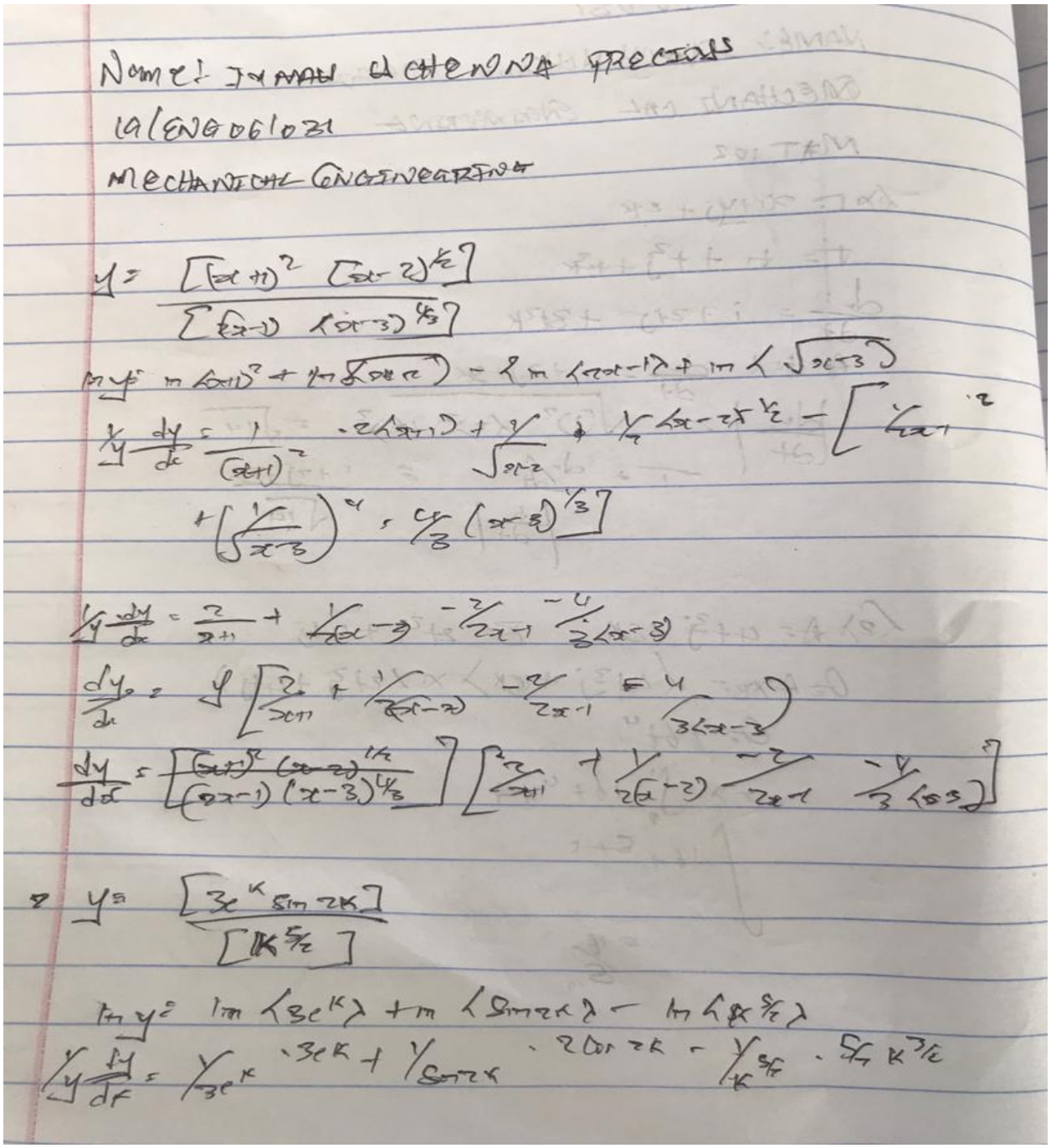
IYAMU UCHENNA PRECIOUS

19/ENG06/031

MECHANICAL ENGINEERING

MAT 104



$$\frac{1}{y}\frac{dy}{dx} = 1 + \frac{2\cos x}{\sin x} \quad \frac{5}{2}x^{\frac{3}{2}} - \frac{5}{2}$$

$$\frac{dy}{dx} = y\left[1 + \frac{2\cos x}{\sin x} \quad -\frac{5}{2}x^{-1}\right]$$

$$\frac{dy}{dx} = \frac{[3e^{11}\sin x]}{[x^{\frac{5}{2}}]}\left[1 + \frac{2\cos x}{\sin x} \quad -\frac{5x}{2}\right]_4$$

$$\int \sin^2(3x+1)\,dx$$

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let $u = 3x+1$

$$\frac{du}{dx} = 3$$

$$du = 3\,dx$$

$$dx = \frac{du}{3} \qquad \int \sin^2 u \frac{du}{3}$$

$$\frac{1}{3}[\tan u + c)$$

But $u = 3x+1$

$$\frac{1}{3}[\tan(3x+1)] + C_u$$

$$\int x\sqrt{(3t^2-1)}\,dt$$

let $u = \sqrt{3t^2-1}$

$$u^2 = 3t^2 - 1$$

$$3t^2 = u^2 + 1$$

$$t^2 = \frac{u^2+1}{3}$$

$$t = \sqrt{\frac{u^2+1}{3}}$$

$$\frac{dt}{du} = \frac{2u}{6}\left(\frac{u^2+1}{3}\right)^{-\frac{1}{2}}$$