

AKINGBAGBOHUN OLUWAFEMI
COMPUTER ENGINEERING
MATIC NO. (M/ENG021004

$$\begin{aligned} 1 \quad y &= \sin\left(\frac{6}{5x^2}\right) \\ &= \sin(6x^{-2}) \\ &= \sin(6(x+Ax)^{-2}) \\ \Delta y &= \sin(6(x+Ax)^{-2}) - \sin(6x^{-2}) \\ &= 2 \cdot \cos\left(\frac{6}{2(x+Ax)}\right) \cdot \sin \end{aligned}$$

$$2 \quad x = 4t^3 - t^2 \\ \text{and } t = 3$$

$$A = \int_1^3 ry dx$$

$$\text{given } y = t^4 + 2t^2$$

$$A = \int_1^3 t^4 + 2t^2 dx$$

$$\text{given } x = 4t^3 - t^2$$

$$\frac{dx}{dt} = 12t^2 - 2t$$

$$dx = (12t^2 - 2t) dt$$

$$A = \int_1^3 t^4 (12t^2 - 2t) dt$$

$$= \int_1^3 (12t^6 - 2t^5 + 24t^4 - 4t^3) dt$$

$$\left[12t^6 - 2t^5 + 24t^4 - 4t^3 \right]_1^3$$

$$[12(3)^6 - 2(3)^5 + 24(3)^4 - 4(3)^3] - [12 - 2 + 24 + 4]$$

$$10,1098 - 30$$

10068 square units

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MATRIC NO: 19/ENG0210074

COMPUTER ENGINEERING

$$3 \quad x = 4t^3 - t^2 \quad y = t^4 + 2t^2$$

$$\frac{dx}{dt} = 12t^2 - 2t \quad \frac{dy}{dt} = 4t^3 + 4t$$

$$\frac{dy}{dt} \times \frac{dt}{dx} = \frac{4t^3 + 4t}{12t^2 - 2t}$$