

19/ENG06/031

**IYAMU UCHENNA PRECIOUS
MECHANICAL ENGINEERING**

MAT104

SN=28

Matric No : 19150061031

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MATHS

SN = 28

$$y = t^3 - \frac{t^2}{2} - 2t + 4$$

$$\Rightarrow \frac{dy}{dt} = 3t^2 - 2t - 2$$

A stationary point $\frac{dy}{dt} = 0$

$$0 = 3t^2 - 2t - 2$$

$$3t^2 - 2t - 2 = 0$$

$$t = \frac{2 \pm \sqrt{4 + 24}}{6}$$

$$t = \frac{2 \pm \sqrt{28}}{6}$$

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$$t = 2.529$$

$$t = \frac{2 + 5.29}{6} \quad t = \frac{2 - 5.51}{6}$$

$$t = 1.22$$

$$t = -0.55$$

When $t = 1.22$

$$y = (1.22)^3 - \frac{(1.22)^2}{2} - 2(1.22) + 4$$

$$y = 1.82 - 0.74 - 2.44 + 4$$

$$y = (-0.55)^3 - \frac{(-0.55)^2}{2} - 2(-0.55) + 4$$

$$y = -0.17 - 0.15 + 1.14$$

$$y = 4.78$$

$$\textcircled{1} \frac{dy}{dx} = \frac{4x - y^3}{3x^2y - 5y}$$

Ans when $x=1$

$$\frac{dy}{dx} = \frac{-4 - y^3}{3x^2y - 5y}$$

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Ans when $y=2$

$$\frac{dy}{dx} = \frac{4x - (2)^3}{3x^2(2) - 5(2)}$$

$$= \frac{4x - 8}{6x^2 - 10}$$

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