

Question 1

$$v) y = e^{2x} \tan 3x$$

$$\frac{dy}{dx} = \frac{u}{v} \quad \frac{du}{dx} = 2e^{2x}$$

$$\frac{dv}{dx} = 3 \sec^2 3x$$

$$\frac{dy}{dx} = (\tan 3x)(2e^{2x}) + \left(\frac{e^{2x}}{\tan 3x}\right)(3 \sec^2 3x)$$

$$vi) y = \frac{\sin 5x}{x^3 + 3x + 4} - u$$

$$\frac{du}{dx} = 3x^2 + 3$$

$$dv = 5 \cos 5x$$

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

$$vii) y = \sqrt{3x^3 + 2x + 5} = (3x^3 + 2x + 5)^{1/2}$$

$$\frac{dy}{dx} = \frac{1}{2} (3x^3 + 2x + 5)^{-1/2} (9x^2 + 2)$$

$$= (4.5x^2 + 1)(3x^3 + 2x + 5)^{-1/2}$$

$$B) y = \sin x \quad 1) \cos x \quad 2) \sin x \quad 3) \cos x$$

$$\frac{dy}{dx}$$

$$\frac{d^2y}{dx^2}$$

$$\frac{d^3y}{dx^3}$$

Answer ↑