

MATHS EXAM

ACMA4006

Q one

ai) $y = 8x^3 - 2x^2 - x + 1$

$$\frac{dy}{dx} = 24x^2 - 4x - 1$$

a ii) $y = -3(x-5)^2$

$$y = -3((x-5)(x-5))$$

$$y = -3(x^2 - 5x - 5x + 25)$$

$$y = -3x^2 + 30x - 75$$

$$\frac{dy}{dx} = -6x + 30$$

a iii) $y = \frac{7}{x^3} + 4e^{3x}$

$$y = 7x^{-3} + 4e^{3x}$$

$$\frac{dy}{dx} = -21x^{-4} + 12e^{3x}$$

a iv) $y = 3\sin 2x - 2\cos 2x + \tan \frac{x}{3}$

$$\frac{dy}{dx} = 6\cos 2x + 4\sin 2x + \frac{1}{3}\sec^2 \frac{x}{3}$$