

Ken DAVIES 6/11/20

Question 1)

a)

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

$$\frac{dy}{dx} = 3(8x^2) - 2(2x) - 1$$

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

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

$$y = -3x + 15^2$$

$$y = -9x + 225$$

$$iii) y = \frac{7}{x^2} + 4e^{3x}$$

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

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

$$\frac{du}{dx} = 5\cos 5x$$

$$\frac{dv}{dx} = x^3 + 3x + 4$$

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