

⑤ a) i) $y = 3x^2 - 5x + e^{2x}$

$$\frac{dy}{dx} = 6x - 5 + 2e^{2x}$$

ii) $y = (x^2 + 5)^2$

	x^2	5
x^2	x^4	$5x^2$
5	$5x^2$	25

$$y = x^4 + 10x^2 + 25$$

$$\frac{dy}{dx} = 4x^3 + 20x$$

iii) $y = \sqrt[3]{x} - \frac{2}{x^5}$

$$y = x^{\frac{1}{3}} - 2x^{-5}$$

$$\frac{dy}{dx} = \frac{1}{3}x^{-\frac{2}{3}} + 10x^{-6}$$

iv) $y = 2\sin 4x + \cos 5x - \tan^{\frac{x}{5}}$

$$\frac{dy}{dx} = 8\cos 4x - 5\sin 5x - \frac{1}{5}\sec^{\frac{x}{5}}$$