

$$\text{iv)} \quad y = e^{2x} \sin 3x$$

$$y = \frac{d}{dx} (e^{2x} \times \sin(3x))$$

$$y = \frac{d}{dx} (e^{2x}) \times \sin(3x) + e^{2x} \times \frac{d}{dx} (\sin(3x))$$

$$y = e^{2x} \times 2\sin(3x) + e^{2x} \times \cos(3x) \times 3$$

$$y = 2e^{2x} \times \sin(3x) + 3e^{2x} \times \cos(3x)$$

$$\text{v)} \quad y = \frac{\tan 7x}{\sin x}$$

$$y = \frac{d}{dx} \left(\frac{\tan 7x}{\sin x} \right)$$

$$y = \frac{\frac{d}{dx} (\tan 7x) \times \sin x - \tan 7x \times \frac{d}{dx} \sin x}{\sin^2 x}$$

$$y = \frac{\sec(7x)^2 \times 7\sin x - \tan 7x \cos x}{\sin^2 x}$$

$$y = \frac{7\sin x - \cos 7x \sin x - \tan 7x \cos x}{\sin^2 x}$$

$$\text{vi)} \quad y = \sqrt{6x^2 - 3x + 5}$$

$$y = \frac{d}{dx} \sqrt{6x^2 - 3x + 5}$$