

Q1) (a)

(iv) $y = \sec^3 4x$

$$\frac{d}{dx} (\sec^3(4x))$$

Apply Chain rule :

$$= 3(\sec(4x))^2 \frac{d}{dx} (\sec(4x))$$

$$\frac{d}{dx} (\sec(4x)) = \sec(4x) \tan(4x) \times 4$$

$$= 3(\sec(4x))^2 \sec(4x) \tan(4x) \times 4$$

$$\text{Simplify: } 3 \sec^2(4x) \sec(4x) \tan(4x) \times 4 = 12 \sec^3(4x) \tan(4x)$$

$$= \underline{\underline{12 \sec^3(4x) \tan(4x)}}$$