

Q1) (a)

$$(vi) \quad y = \frac{1-10x}{(2x-1)^2}$$

$$\frac{d}{dx} \left(\frac{1-10x}{(2x-1)^2} \right)$$

Apply the quotient rule: $\left(\frac{f}{g} \right)' = \frac{f' \times g - g' \times f}{g^2}$

$$= \frac{\frac{d}{dx} (1-10x) (2x-1)^2 - \frac{d}{dx} ((2x-1)^2) (1-10x)}{((2x-1)^2)^2}$$

$$\frac{d}{dx} (1-10x) = -10$$

$$\frac{d}{dx} ((2x-1)^2) = 4(2x-1)$$

$$= \frac{(-10)(2x-1)^2 - 4(2x-1)(1-10x)}{((2x-1)^2)^2}$$

$$\text{Simplify: } \frac{(-10)(2x-1)^2 - 4(2x-1)(1-10x)}{((2x-1)^2)^2} = - \frac{2(-10x-3)}{(2x-1)^3}$$

$$= - \frac{2x(-10x-3)}{(2x-1)^3}$$