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Q1: a

$$vi) y = \frac{1-10x}{(2x-1)^2} \quad \begin{matrix} u \\ v \end{matrix}$$

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

$$\frac{u'v - v'u}{v^2}$$

$$u = 1-10x \quad u' = -10x$$

$$v = (2x-1)^2 \quad v' = 4x$$

$$\begin{aligned} -10-4 &= -14x \\ &= -10 \times 2 = -20x^2 = -400x \\ -10 \times -1 &= 10x^2 = 100x \\ 2x^2 &= 4x \quad x-10x = -40x^2 \\ -1^2 &= -1 \quad x-10x = 10x \end{aligned}$$

$$4x \times 1 = 4x$$

$$4x \times -10x = -40x^2$$

$$= \frac{(-40x^2 + 100x) - (4x - 40x^2)}{(2x-1)^2}$$

$$-40 - (-40) = 0$$

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$$10 - 4 = 6x$$

$$\text{Ans: } y' = \frac{6x}{(2x-1)^2}$$

Q1: b Given  $y = \frac{1}{x} + \cos 2x$ , find  $\frac{d^5 y}{dx^5}$

$$\frac{1}{x} = 1$$

$$1 - \sin 2x$$

$$\frac{1}{x} = 1$$

$$\cos 2x = -\sin 2x$$

$$5 - \sin 2x ?$$