

- Sec 11.3 :-

[6] Find  $\frac{dy}{dx}$  at the given point :-

$$x^2 + 5xy + y = 0 \text{ at } (1, -1)$$

implicit differentiation.

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$$\rightarrow 2x + 5xy' + 5y = 0 \quad (1, -1)$$

$$2(1) + 5(1)y' + 5(-1) = 0$$

$$2 + 5y' - 5 = 0$$

$$\rightarrow \begin{matrix} -3 \\ +3 \end{matrix} + 5y' = 0 \begin{matrix} +3 \\ +3 \end{matrix} \rightarrow \frac{5}{5}y' = \frac{3}{5} \rightarrow \boxed{y' = \frac{3}{5}}$$

[13]  $xy^2 - y^3 = 1$ , find  $y'$ .

implicit differentiation.

$$\rightarrow x(2y y') + y^2(1) - 3y^2 \cdot y' = 0$$

$$2xy y' - 3y^2 y' = -y^2$$

$$\rightarrow y'(2xy - 3y^2) = -y^2$$

$$\therefore y' = \frac{-y^2}{2xy - 3y^2}$$