

37] If $x e^y = 6$, find $\frac{dy}{dx}$.
impl. diff.

$$\rightarrow x e^y y' + e^y (1) = 0$$

$$\rightarrow x e^y y' + e^y = 0 \rightarrow x e^y y' + \frac{e^y}{-e^y} = 0$$

$$\rightarrow \frac{x e^y y'}{x e^y} = \frac{-e^y}{x e^y} = \frac{-1}{x}$$

$$\rightarrow \boxed{y' = \frac{-1}{x}}$$

42] If $x^2 y = e^{x+y}$, find $\frac{dy}{dx}$.

$$\rightarrow x^2 y' + y(2x) = e^{x+y} (1 + y')$$

$$x^2 y' + 2xy = e^{x+y} + y' e^{x+y}$$

$$x^2 y' + y' e^{x+y} = e^{x+y} + 2xy$$

$$\rightarrow y' (x^2 + e^{x+y}) = e^{x+y} + 2xy$$

$$\rightarrow \boxed{y' = \frac{e^{x+y} + 2xy}{x^2 + e^{x+y}}}$$

48] At what points does the curve defined by $x^2 + 4y^2 = 4$ have:-

a) horizontal tangent.

نقطه = دو کات المابا $y=0$ است

