

Applied Mathematics

Derivatives of Implicit Functions

Derivatives

2 ND Semester Diploma All Branches

Lec-5

MSBTE - Polytechnic



CSTA Launchpad
Open Mind Guruji

$$\int x^n dx = \frac{x^{n+1}}{n+1} + c$$



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

1. Find $\frac{dy}{dx}$ if $x^2 + y^2 = 25$

$\leftrightarrow \uparrow$ $x^2 + y^2 = 25$ — (1)

diff w.r.t. x

$$\frac{d}{dx} [x^2 + y^2] = \frac{d}{dx} [25]$$

$$\frac{d}{dx} x^2 + \frac{d}{dx} y^2 = \frac{d}{dx} 25$$

$$2 \cdot x^{2-1} + 2y \frac{d}{dx} y = 0$$

$$2x + 2y \cdot \frac{dy}{dx} = 0$$

$$\frac{d}{dx} x^n = n \cdot x^{n-1}$$

$$\frac{d}{dx} y = \frac{dy}{dx}$$

1. Find $\frac{dy}{dx}$, if $x^2 + y^2 = 25$

4

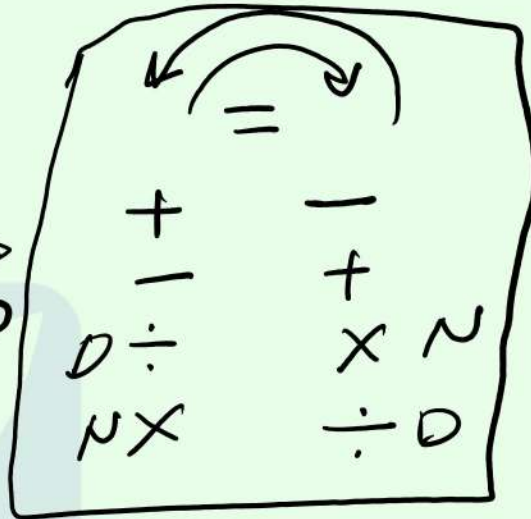
$$\underline{2x} + 2y \frac{dy}{dx} = 0$$

$$-\frac{2y \cdot dy}{dx} = -2x$$

$$\frac{dy}{dx} = \frac{-2x}{2y}$$

$$\frac{dy}{dx} = \frac{x}{y}$$

Final



Ans

1. Find $\frac{dy}{dx}$, if $x^2 + y^2 = 25$



CSTA

Launchpad
Polytechnic