Diffrentiation = अवकलन

01. Sum rule

$$\frac{d}{dx}(u+v) = \frac{du}{dx} + \frac{dv}{dx}$$

$$y = x^3 + 3x$$

$$\frac{d}{dx}(x^3 + 3x) = \frac{d}{dx}(x^3) + \frac{d}{dx}(3x)$$

$$= 3x^{3-1} + 3\frac{d}{dx}(x) = 3x^2 + 3(1) = 3x^2 + 3 \text{ Ans}$$

$$y = x^4 + 12x$$

$$\frac{d}{dx}(x^4 + 12x) = \frac{d}{dx}(x^4) + \frac{d}{dx}(12x)$$

$$= 4x^{4-1} + 12\frac{d}{dx}(x) = 4x^3 + 12(1) = 4x^3 + 12 \text{ Ans}$$

Type equation here.

03. Constant multiple rule

$$\frac{d}{dx}(cx^n) = c\frac{d}{dx}(nx^{n-1}) = c.x^{n-1}$$

$$y = 3x^4$$

$$\frac{d}{dx}(3x^4) = 3\frac{d}{dx}(4x^{4-1}) = 3(4x^3) = 12x^3 \text{ Ans}$$

$$y = 2x^5$$

$$\frac{d}{dx}(2x^5) = 2\frac{d}{dx}(5x^{5-1}) = 2(5x^{4)} = 10x^4 \text{ Ans}$$