Chain Rule

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It use for finding the complex derivatives →

$$\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}$$

Ex → Derivative = ?

$$y = (x^3+1)^9$$

$$u = (x^3+1)$$

$$y = u^9$$

$$\frac{du}{dx} = \frac{d}{dx}(x^3+1)$$

$$= 3x^2$$

$$\frac{dy}{du} = \frac{d}{du}(u)^9$$

$$= 9u^8$$

$$\frac{dy}{dx} = 9u^8 \times 3x^2$$

$$= 9(x^3+1) \times 3x^2$$

$$= 27x^2(x^3+1)$$