

# ΒΑΣΙΚΕΣ ΠΑΡΑΓΩΓΟΙ για το ΕΠΑ.Λ.

$$(x^a)' = ax^{a-1}$$

$$x' = 1$$

$$(ax)' = a$$

$$(5x)' = 5$$

$$(-6x)' = -6$$

$$(x^3)' = 3x^{3-1} = 3x^2$$

$$(5x^3)' = 5 \cdot 3x^{3-1} = 15x^2$$

$x > 0$

$$c' = 0$$

$$(e^5)' = 0$$

$$(23)' = 0$$

$$(\ln 4)' = 0$$

$$(\sqrt{x})' = \frac{1}{2\sqrt{x}}$$

$$\left(\frac{1}{x}\right)' = -\frac{1}{x^2}$$

$$(\eta\mu x)' = \sigma\nu\nu x$$

$$(\sigma\nu\nu x)' = -\eta\mu x$$

$$(e^x)' = e^x$$

$$(\ln x)' = \frac{1}{x}$$

$x > 0$

$$(f \pm g)' = f' \pm g'$$

$$(x^3 + \eta\mu x)' = (x^3)' + (\eta\mu x)' = 3x^2 + \sigma\nu\nu x$$

$$(f \cdot g)' = f' \cdot g + f \cdot g'$$

$$(x^3 \eta\mu x)' = (x^3)' \eta\mu x + x^3 (\eta\mu x)' = 3x^2 \eta\mu x + x^3 \sigma\nu\nu x$$

$$\left[\frac{f}{g}\right]' = \frac{f' \cdot g - f \cdot g'}{g^2}$$

$$\left(\frac{\eta\mu x}{x^3}\right)' = \frac{(\eta\mu x)' x^3 - \eta\mu x (x^3)'}{(x^3)^2} = \frac{\sigma\nu\nu x \cdot x^3 - \eta\mu x \cdot 2x^3}{(x^3)^2}$$

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## ΚΑΝΟΝΑΣ ΤΗΣ ΑΛΥΣΙΔΑΣ (για παραγωγή σύνθετων συναρτήσεων)

$$(f \circ g)'(x) = f'[g(x)] \cdot g'(x)$$

$$(\eta\mu(x^3))' = \sigma\nu\nu(x^3) \cdot (x^3)' = \sigma\nu\nu(x^3) \cdot 3x^2$$

$$\left[(5x^3 + 2x - 7)^3\right]' = 3(5x^3 + 2x - 7)^2 \cdot (5x^3 + 2x - 7)' = 3(5x^3 + 2x - 7)^2 \cdot (15x^2 + 2)$$