

## ΜΑΘΗΜΑ 7ο

Εφαρμογές του κανόνα παραγωγής σύνθετης συνάρτησης.

$$\begin{aligned} 1) (x^4)' &= 4x^3, \quad [(x^2+3x)^4]' = 4(x^2+3x)^3 \cdot (x^2+3x)' = \\ &= 4(x^2+3x)^3 \cdot ((x^2)' + (3x)') = \\ &= 4(x^2+3x)^3 \cdot (2x+3) \end{aligned}$$

$$\begin{aligned} 2) (\sqrt{x})' &= \frac{1}{2\sqrt{x}}, \quad (\sqrt{x^2+1})' = \frac{1}{2\sqrt{x^2+1}} \cdot (x^2+1)' = \\ &= \frac{1}{2\sqrt{x^2+1}} \cdot (2x+0) = \\ &= \frac{2x}{2\sqrt{x^2+1}} = \frac{x}{\sqrt{x^2+1}} \end{aligned}$$

$$\begin{aligned} 3) (e^x)' &= e^x, \quad (e^{x^4+5x})' = e^{x^4+5x} \cdot (x^4+5x)' = \\ &= e^{x^4+5x} \cdot (4x^3+5) = (4x^3+5) \cdot e^{x^4+5x} \end{aligned}$$

$$\begin{aligned} 4) (\ln x)' &= \frac{1}{x}, \quad [\ln(x^6+3)]' = \frac{1}{x^6+3} \cdot (x^6+3)' = \\ &= \frac{1}{x^6+3} \cdot (6x^5+0) = \frac{6x^5}{x^6+3} \end{aligned}$$