ΜΑΘΗΜΑ 5ο

Κανόνας του πηλίκου $\boxed{\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x)\cdot g(x) - f(x)\cdot g'(x)}{g^2(x)}}$

Παραδείγματα

1) $\left(\frac{2x}{x^4+1}\right)' = \frac{(2x)'(x^4+1) - 2x(x^4+1)'}{(x^4+1)^2} =$

$= \frac{2\cdot(x^4+1) - 2x(4x^3+0)}{(x^4+1)^2} = \frac{2x^4+2-8x^4}{(x^4+1)^2} = \frac{-6x^4+2}{(x^4+1)^2}$

2) $\left(\frac{x+e^x}{x^2+1}\right)' = \frac{(x+e^x)'\cdot(x^2+1) = (x+e^x)\cdot(x^2+1)'}{(x^2+1)^2}$

$= \frac{(1+e^x)(x^2+1) - (x+e^x)(2x+0)}{(x^2+1)^2} = \ldots.$

3) $\left(\frac{1}{x}\right)' = \frac{(1)'\cdot x - 1(x)'}{x^2} = \frac{0\cdot x - 1\cdot 1}{x^2} = \frac{0-1}{x^2} = \frac{-1}{x^2}$

4) $\left(\frac{1}{x^2}\right)' = \frac{(1)'\cdot x^2 - 1(x^2)'}{(x^2)^2} = \frac{0\cdot x^2 - 1\cdot 2x}{x^4} = \frac{0-2x}{x^4} =$

$= \frac{-2x}{x^4} = \frac{-2}{x^3}$