

derivazione di una $f(x) = f(g(x))$.

$$f(x) = \frac{1}{2}(x^2 + a^2)^{-1/2} = \frac{1}{2} \frac{1}{\sqrt{x^2 + a^2}}$$

$$f'(x) = 2x \cdot \frac{1}{2} \frac{1}{\sqrt{x^2 + a^2}} = \frac{x}{\sqrt{x^2 + a^2}}$$

$$(f(g(x)))' = f'(g(x)) \cdot g'(x) \quad \frac{d e^x}{dx} = e^x \quad \frac{d \sin x}{dx} = \cos x$$

προκύπτει αν σενν $f(x) = e^x$ όπου x το $g(x) = \sin x$
 δηλαδή είναι $f(x) = f(g(x))$

$$f(x) = e^{\sin x}$$

$$f'(x) = \cos x \cdot e^{\sin x} = e^{\sin x} \cos x$$

$$\frac{d}{dx} \sin x = \cos x \quad (f(g(x)))' = f'(g(x)) \cdot g'(x)$$

$f(x) = \frac{1}{\sin x}$ προκύπτει αν σενν $f(x) = \frac{1}{x}$ όπου x το $g(x) = \sin x$
 δηλαδή είναι $f(x) = f(g(x))$.

$$\frac{d}{dx} \left(\frac{h}{s} \right) = \left(\frac{f}{s^2} \right) \left(\frac{dh}{dx} s - h \frac{ds}{dx} \right)$$

$h \equiv h(x) \quad s \equiv s(x) \neq 0$

$$\left(\frac{1}{x^2} \right) \left(\frac{d}{dx} \sin x - \sin x \frac{d}{dx} \frac{1}{x^2} \right) = \left(\frac{1}{x^2} \right) (0 - 1) = -\frac{1}{x^2}$$

$$\frac{d}{dx} \left(\frac{1}{\sin x} \right) = -\frac{\cos x}{\sin^2 x}$$