Cálculo Diferencial 221229

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$y = \sec 4x$ $\frac{d}{dx}\frac{u}{v} = \frac{uv - vu}{v'}$ $u = 1$

$v = \cos(4x)$, $v' = -\sin(4x)\cdot 4$

$y' = \frac{d}{dx}(\sec 4x) = \frac{d}{dx}\left(\frac{1}{\cos(4x)}\right)\cdot\frac{1}{\cos(4x)}$

$y' = \frac{(0)\cos(4x)\cdot(-\sin(4x)\cdot 4)(1)}{\cos^2(4x)}$ $y' = \frac{4\sin(4x)}{\cos^2(4x)}$

$y' = \frac{4\sin(4x)}{\cos^2(4x)}\cdot\frac{1}{\cos(4x)} = 4\sec 4x \tan 4x$

$y = a \csc bO$

$y' \frac{d}{dx}(a \csc(bO))$ $y' = \frac{d}{dx}\left(\frac{a}{\sin(bO)}\right)$

$y' = \frac{0(\sin(bO)) - (\cos(bO)\cdot b\cdot a}{\sin^2 bO}$ $y = \frac{-ab\cos bO}{\sin^2(bO)}$

$y = -ab \csc bO \operatorname{ctg} bO$

$y = 1/2 \sin^2 x$

$\frac{1}{2}\left(\frac{1}{2}\cos x\right) + \sin^2 x$

$\sin x \cos x$

$$S = \sqrt{\cos 2t}$$

$$S' = \frac{1}{2} \frac{1}{\sqrt{\cos 2t}} \cdot (\cos 2t) \cdot \operatorname{Sen} 2t)$$

$$S' = \frac{-\operatorname{Sen} 2t}{\sqrt{\cos 2t}}$$

$$Q = \sqrt[3]{\operatorname{tg} 30} \qquad Q = \frac{1}{3}(\operatorname{tg} 30)^{-2/3} (\operatorname{Sec}^2 30) \cdot (3)$$

$$= \frac{3 \operatorname{Sec}^2 30}{3 (\operatorname{tg} 30)^{2/3}} = \frac{\operatorname{Sec}^2 30}{(\operatorname{tg} 30)^{2/3}}$$

$$y = \frac{4}{\sqrt{\operatorname{Sec} x}} = 4(\operatorname{Sen} x^{-1/2}) \quad \frac{dy}{dx} = 4(\operatorname{Sec}^{-1/2})(\operatorname{Sec} x)$$

$$= 4\left(\frac{1}{2 \operatorname{Sec}^{3/2}}\right) \operatorname{Sec} \cdot \operatorname{tg} x \quad \frac{dy}{dx} = \frac{-4 \operatorname{Sec} x \operatorname{tg}}{2 \operatorname{Sec}^{3/2} x}$$

$$= \frac{-2 \operatorname{Sec} x \operatorname{tg} x}{\operatorname{Sec}^{3/2} x} = -2\left(\frac{1}{\operatorname{Sec}^{3/2} x}\right) = \frac{-2 \operatorname{tg} x}{\sqrt{\operatorname{Sec} x}}$$

$$y = \frac{\cos x}{x} = -(\cos x \; x) = -\operatorname{Sen} x \; lx \; \cos x$$

$$\frac{-x \operatorname{Sen} x - \cos x}{x^2}$$

$y = 2 \operatorname{sen} 2x \cos^2 x$

$y' = (2 \operatorname{sen}(2x) \cos^2(x)$

$= 4 \cos^2(x) \cos(2x) - 2 \operatorname{sen}^2(2x)$

$y = 4 \operatorname{sen} 2x \cos x \operatorname{sen} x + 4 \cos^2 x \cos 2x$

$y = x^2 \tan ax^3$

$y' = (x^2 \tan^3(ax^3)) = 3 \tan^2 \cdot 2x \tan^3(ax) + x^2$

$y' = 3ax^4 \sec^2 ax^3 + 2x \underline{\tan ax^3}$

$f(x) = \cos x + x \operatorname{sen} x$

$(\cos x) + x(\operatorname{sen}(x)) : x(\operatorname{sen} x)$

$\underline{x \cos x}$

$f(x) = 3 \operatorname{sen} x - x \cos x$

$3(\cos x) + x(\operatorname{sen} x) - x$

$3 \cos x + x \operatorname{sen} x - x$

$2 \cos x + x \underline{\operatorname{sen} x}$