MATEMATICAS N. 3 A.P.

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DERIVADAS

$\frac{dc}{dx} = 0 \qquad \frac{dx}{dx} = 1$

$\frac{d}{dx}(u+v-w) = \frac{du}{dx} + \frac{dv}{dx} - \frac{dw}{dx}$

$\frac{d}{dx}(cv) = c\frac{dv}{dx}$

$\frac{d}{dx}(uv) = u\frac{dv}{dx} + v\frac{du}{dx}$

$\frac{d}{dx}(v^n) = nv^{n-1}\frac{dv}{dx}$

$\frac{d}{dx}(x^n) = nx^{n-1}$

$\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$

$\frac{d}{dx}\left(\frac{u}{c}\right) = \frac{\frac{du}{dx}}{c}$

$\frac{dy}{dx} = \frac{dy}{dv}\cdot\frac{dv}{dx}$, y función de v

$\frac{dy}{dx} = \frac{1}{\frac{dx}{dy}}$, y función de x

$\frac{d}{dx}(Lnv) = \frac{\frac{dv}{dx}}{v} = \frac{1}{v}\frac{dv}{dx}$ **

$\frac{d}{dx}(Logv) = \frac{Log\ e}{v}\frac{dv}{dx}$

$\frac{d}{dx}(a^v) = a^v\ Ln\ a\frac{dv}{dx}$

$\frac{d}{dx}(e^v) = e^v\frac{dv}{dx}$

$\frac{d}{dx}(u^v) = vu^{v-1}\frac{du}{dx} + Lnu\ u^v\frac{dv}{dx}$

$\frac{d}{dx}(senv) = cosv\ \frac{dv}{dx}$

$\frac{d}{dx}(cosv) = -senv\frac{dv}{dx}$

$\frac{d}{dx}(tgv) = sec^2v\ \frac{dv}{dx}$

$\frac{d}{dx}(ctgv) = -csc^2v\frac{dv}{dx}$

$\frac{d}{dx}(secv) = secv\ tgv\ \frac{dv}{dx}$

$\frac{d}{dx}(cscv) = -cscv\ ctgv\frac{dv}{dx}$

$\frac{d}{dv}\ versv = senv\frac{dv}{dx}$

$\frac{d}{dx}(arcsenv) = \frac{dv/dx}{\sqrt{1-v^2}}$

$\frac{d}{dx}(arccosv) = \frac{-(dv/dx)}{\sqrt{1-v^2}}$

$\frac{d}{dx}(arctgv) = \frac{dv/dx}{1+v^2}$

$\frac{d}{dx}(arcctgv) = -\frac{dv/dx}{1+v^2}$

$\frac{d}{dx}(arcsecv) = \frac{dv/dx}{v\sqrt{v^2-1}}$

$\frac{d}{dx}(arccscv) = -\frac{dv/dx}{v\sqrt{v^2-1}}$

$\frac{d}{dx}(arcversv) = \frac{dv/dx}{\sqrt{2v-v^2}}$

$\frac{d}{dx}(e^{-v}) = -e^{-v}\frac{dv}{dx}$

$\frac{d}{dx}(cu^n) = cnu^{n-1}\frac{du}{dx}$

$\frac{d}{dx}(senh\ v) = cosh\ v\ \frac{dv}{dx}$ ***

$\frac{d}{dx}(cosh\ v) = senh\ v\ \frac{dv}{dx}$

$\frac{d}{dx}(tgh\ v) = sech^2\ v\ \frac{dv}{dx}$

$\frac{d}{dx}(ctgh\ v) = -csch^2\ v\frac{dv}{dx}$

$\frac{d}{dx}(sech\ v) = -sech\ v\ tgh\ v\frac{dv}{dx}$

$\frac{d}{dx}(csch\ v) = -csch\ v\ ctgh\ v\frac{dv}{dx}$

$\frac{d}{dx}(senh^{-1}v) = \frac{dv/dx}{\sqrt{v^2+1}}$

$\frac{d}{dx}(cosh^{-1}v) = \frac{dv/dx}{\pm\sqrt{v^2-1}}$ (v>1)

$\frac{d}{dx}(tgh^{-1}v) = \frac{dv/dx}{1-v^2}$ (v^2-1)

DIFERENCIALES

$d(c) = 0 \qquad d(x) = dx$

$d(u+v-w) = du+dv-dw$

$d(cv) = cdv$

$d(vu) = vdu+udv$

$d(v^n) = nv^{n-1}dv$

$d(x^n) = nx^{n-1}dx$

$d\left(\frac{u}{v}\right) = \frac{vdu-udv}{v^2}$

$d\left(\frac{u}{c}\right) = \frac{du}{c}$

$d(Lnv) = \frac{dv}{v}$

$d(av) = a^vLna\ dv$

$d(ev) = e^vdv$

DIFERENCIALES

$d(u^v) = vu^{v-1}du + Lnu.u^vdv$

$d(senv) = cosv\ dv$

$d(cosv) = -senv\ dv$

$d(tgv) = sec^2v\ dv$

$d(ctgv) = -csc^2v\ dv$

$d(secv) = secv\ tgv\ dv$

$d(cscv) = -cscv\ ctgv\ dv$

$d(versv) = senv\ dv$

$d(arcsenv) = \frac{dv}{\sqrt{1-v^2}}$

$d(arccosv) = -\frac{dv}{\sqrt{1-v^2}}$

$d(arctgv) = \frac{dv}{1+v^2}$

$d(arcctgv) = -\frac{dv}{1+v^2}$

$d(arcsecv) = \frac{dv}{v\sqrt{v^2-1}}$

$d(arccscv) = -\frac{dv}{v\sqrt{v^2-1}}$

$d(arcversv) = \frac{dv}{\sqrt{2v-v^2}}$

$d(e^{-v}) = -e^{-v}\ dv$

$d(cv^n) = c^n\ v^{n-1}dv$

LEY DE LOS EXPONENTES

$a^x\ a^y = a^{x+y}; \qquad (ab)^x = a^x\ b^x;$

$a^{-x} = 1/a^x; \qquad a^x/a^y = a^{x-y};$

$a^{x/y} = \sqrt[y]{a^x}; \qquad a^{1/y} = \sqrt[y]{a};$

$(a^x)^y = a^{xy}; \qquad a^0 = 1 \text{ si } a \neq 0$ *

ECUACION CUADRATICA

$ax^2+bx+c = 0 \qquad a \neq 0$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

ALFABETO GRIEGO

Alfa	A	α
Beta	B	β
Gamma	Γ	γ
Delta	Δ	δ
Epsilon	E	ε
Tzeta	Z	ζ
Eta	H	η
Theta	Θ	θ
Iota	I	ι
Kappa	K	κ
Lambda	Λ	λ
Mi o mu	M	μ
Ni o nu	N	ν
Xi	≡	ξ
Omicron	O	o
Pi	Π	π
Ro	P	ρ
Sigma	Σ	σ
Tau	T	τ
Ipsilon	Y	υ
Fi	Φ	φ
Ji	X	χ
Psi	Ψ	ψ
Omega	Ω	ω

LOGARITMOS

$LogMN = LogM+LogN$

$LogM/N = LogM-LogN$

$Log\sqrt[q]{M} = 1/qLogM$

$a.0 = 0$

$0/a = 0$ *

$0^a = 0$

$a/0 = \infty$

(Lnv = Log_ev) **

senh v = 1/2 (e^v-e^{-v}) ***

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CALCULO A. P.

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TABLA DE INTEGRALES

$$\int dx = x + C$$

$$\int (du + dv - dw) = u + v - w + C$$

$$\int a\,dv = a\int dv$$

$$\int v^n dv = \frac{v^{n+1}}{n+1} + C \qquad (n \neq -1)$$

$$\int \frac{dv}{v} = \operatorname{Ln}|v| + C$$

$$\int a^v dv = \frac{a^v}{\operatorname{Ln} a} + C$$

$$\int e^v dv = e^v + C$$

$$\int \operatorname{senv}\, dv = -\operatorname{cosv} + C$$

$$\int \operatorname{cosv}\, dv = \operatorname{senv} + C$$

$$\int \operatorname{tgv}\, dv = \operatorname{Ln}|\operatorname{secv}| + C$$

$$\int \operatorname{ctgv}\, dv = \operatorname{Ln}|\operatorname{senv}| + C$$

$$\int \operatorname{secv}\, dv = \operatorname{Ln}|\operatorname{secv} + \operatorname{tgv}| + C$$

$$\int \operatorname{cscv}\, dv = \operatorname{Ln}|\operatorname{cscv} - \operatorname{ctgv}| + C$$

$$\int \sec^2 v\, dv = \operatorname{tgv} + C$$

$$\int \csc^2 v\, dv = -\operatorname{ctgv} + C$$

$$\int \operatorname{secv}\operatorname{tgv}\, dv = \operatorname{secv} + C$$

$$\int \operatorname{cscv}\operatorname{ctgv}\, dv = -\operatorname{cscv} + C$$

$$\int \frac{dv}{\sqrt{a^2 - v^2}} = \operatorname{arcsen}\frac{v}{a} + C$$

$$\int \frac{dv}{v^2 + a^2} = \frac{1}{a}\operatorname{arctg}\frac{v}{a} + C$$

$$\int \frac{dv}{v^2 - a^2} = \frac{1}{2a}\operatorname{Ln}\left|\frac{v-a}{v+a}\right| + C$$

$$\int \frac{dv}{a^2 - v^2} = \frac{1}{2a}\operatorname{Ln}\left|\frac{a+v}{a-v}\right| + C$$

$$\int \frac{dv}{v\sqrt{v^2 - a^2}} = \frac{1}{a}\operatorname{arcsec}\frac{v}{a} + C$$

$$\int \frac{dv}{\sqrt{v^2 \pm a^2}} = \operatorname{Ln}\left(v + \sqrt{v^2 \pm a^2}\right) + C$$

$$\int \operatorname{senh} v\, dv = \cosh v + C$$

$$\int \cosh v\, dv = \operatorname{senh} v + C$$

$$\int \operatorname{tgh} v\, dv = \operatorname{Ln}\cosh v + C$$

$$\int \operatorname{ctgh} v\, dv = \operatorname{Ln}|\operatorname{senh} v| + C$$

$$\int \operatorname{sech}^2 v\, dv = \operatorname{tgh} v + C$$

$$\int \operatorname{csch}^2 v\, dv = -\operatorname{ctgh} v + C$$

$$\int \operatorname{sech} v \operatorname{tgh} v\, dv = -\operatorname{sech} v + C$$

$$\int \operatorname{csch} v \operatorname{ctgh} v\, dv = -\operatorname{csch} v + C$$

$$\int \frac{dv}{\sqrt{v^2 + a^2}} = \operatorname{senh}^{-1}\frac{v}{a} + C$$

$$\int \frac{dv}{\sqrt{v^2 - a^2}} = \operatorname{csch}^{-1}\frac{v}{a} + C \qquad v > a > 0$$

$$\int \frac{dv}{a^2 - v^2} = \frac{1}{a}\operatorname{tgh}^{-1}\frac{v}{a} + C \qquad v^2 < a^2$$

$$\int \frac{dv}{v^2 - a^2} = -\frac{1}{a}\operatorname{ctgh}^{-1}\frac{v}{a} + C \qquad v^2 > a^2$$

$$\int \sqrt{a^2 - v^2}\, dv = \frac{v}{2}\sqrt{a^2 - v^2} + \frac{a^2}{2}\operatorname{arcsen}\frac{v}{a} + C$$

$$\int \sqrt{v^2 \pm a^2}\, dv = \frac{v}{2}\sqrt{v^2 \pm a^2} \pm \frac{a^2}{2}\operatorname{Ln}\left(v + \sqrt{v^2 \pm a^2}\right) + C$$

$$\int \operatorname{arcsenv}\, dv = v\operatorname{arcsenv} + \sqrt{1 - v^2} + C$$

$$\int \operatorname{arccosv}\, dv = v\operatorname{arccosv} - \sqrt{1 - v^2} + C$$

$$\int \operatorname{arctgv}\, dv = v\operatorname{arctgv} - \operatorname{Ln}\sqrt{1 + v^2} + C$$

$$\int \operatorname{arcctgv}\, dv = v\operatorname{arcctgv} + \operatorname{Ln}\sqrt{1 + v^2} + C$$

$$\int \operatorname{arcsecv}\, dv = v\operatorname{arcsecv} - \cosh^{-1} v + C$$

$$\int \operatorname{arccscv}\, dv = v\operatorname{arccscv} + \cosh^{-1} v + C$$

$$\int \operatorname{sen}^2 v\, dv = \frac{1}{2}v - \frac{1}{4}\operatorname{sen}2v + C$$

$$\int \cos^2 v\, dv = \frac{1}{2}v + \frac{1}{4}\operatorname{sen}2v + C$$

$$\int \cos^n v \operatorname{senv}\, dv = -\frac{\cos^{n+1} v}{n+1} + C$$

$$\int \operatorname{senmv}\operatorname{sennv}\, dv = -\frac{\operatorname{sen}(m+n)v}{2(m+n)} + \frac{\operatorname{sen}(m-n)v}{2(m-n)} + C$$

$$\int \operatorname{senmv}\operatorname{cosnv}\, dv = -\frac{\cos(m+n)v}{2(m+n)} - \frac{\cos(m-n)v}{2(m-n)} + C$$

$$\int \operatorname{sen}^n v \operatorname{cosv}\, dv = \frac{\operatorname{sen}^{n+1} v}{n+1} + C$$

$$\int v \operatorname{senv}\, dv = \operatorname{senv} - v\operatorname{cosv} + C$$

$$\int v \operatorname{cosv}\, dv = \operatorname{cosv} + v\operatorname{senv} + C$$

$$\int e^{av}\, dv = \frac{e^{av}}{a} + C$$

$$\int b^{av} dv = \frac{b^{av}}{a \operatorname{Ln} b} + C$$

$$\int v e^{av} dv = \frac{e^{av}}{a^2}(av - 1) + C$$

$$\int v^n e^{av} dv = \frac{v^n e^{av}}{a} - \frac{n}{a}\int v^{n-1} e^{av} dv$$

$$\int v^n b^{av} dv = \frac{v^n b^{av}}{a \operatorname{Ln} b} - \frac{n}{a \operatorname{Ln} b}\int u^{n-1} b^{av} dv + C$$

$$\int \frac{b^{av} dv}{v^n} = -\frac{b^{av}}{(n-1)v^{n-1}} + \frac{a \operatorname{Ln} b}{n-1}\int \frac{b^{av} dv}{v^{n-1}}$$

$$\int \operatorname{Lnv}\, dv = v\operatorname{Lnv} - v + C$$

$$\int v^n \operatorname{Lnv}\, dv = v^{n+1}\left[\frac{\operatorname{Lnv}}{n+1} - \frac{1}{(n+1)^2}\right] + C$$

$$\int e^{av} \operatorname{Lnv}\, dv = \frac{e^{av}\operatorname{Lnv}}{a} - \frac{1}{a}\int \frac{e^{av}}{v} dv$$

$$\int \frac{dv}{v \operatorname{Lnv}} = \operatorname{Ln}(\operatorname{Lnv}) + C$$

$$\int_a^b f(x)\, dx = F(x)\Big]_a^b = F(b) - F(a)$$

Consulta:

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