Facens
FACULDADE DE ENGENHARIA DE SOROCABA

TABELA DE DERIVADAS

Considerando *u* e *v* funções deriváveis de *x* e, *k* e *n* constantes:

(1) $f(x)=k \Rightarrow f'(x)=0$	(18) $f(u)=u^v \Rightarrow f'(u)=v.u^{v-1}.u'+u^v.(\ln u).v'$
(2) $f(x)=x \Rightarrow f'(x)=1$	(19) $f(x)=sen\,x \Rightarrow f'(x)=\cos x$
(3) $f(x)=k\,x \Rightarrow f'(x)=k$	(20) $f(u)=sen\,u \Rightarrow f'(u)=\cos u\cdot u'$
(4) $f(x)=k\,u \Rightarrow f'(x)=k\,u'$	(21) $f(x)=\cos x \Rightarrow f'(x)=-sen\,x$
(5) $f(x)=u\pm v \Rightarrow f'(x)=u'\pm v'$	(22) $f(u)=\cos u \Rightarrow f'(u)=-sen\,u\cdot u'$
(6) $f(x)=u.v \Rightarrow f'(x)=u'.v+u.v'$	(23) $f(x)=tg\,x \Rightarrow y'=\sec^2 x$
(7) $f(x)=\frac{u}{v} \Rightarrow f'(x)=\frac{u'.v-u.v'}{v^2}$	(24) $f(u)=tg\,u \Rightarrow f'(u)=(\sec^2 u).u'$
(8) $f(x)=x^n \Rightarrow f'(x)=nx^{n-1}$	(25) $f(u)=\sec x \Rightarrow f'(u)=\sec x.tgx$
(9) $f(u)=u^n \Rightarrow f'(u)=nu^{n-1}u'$	(26) $f(u)=\sec u \Rightarrow f'(u)=(\sec u).(tgu).u'$
(10) $f(x)=e^x \Rightarrow f'(x)=e^x$	(27) $f(u)=\cot g\,u \Rightarrow f'(u)=-(\cos ec^2 u).u'$
(11) $f(u)=e^u \Rightarrow f'(u)=e^u\cdot u'$	(28) $f(u)=\cos ecu \Rightarrow f'(u)=-(\cos ecu).(\cot g\,u).u'$
(12) $f(x)=a^x \Rightarrow f'(x)=a^x\ln a$	(29) $f(u)=arcsenu \Rightarrow f'(u)=\frac{1}{\sqrt{1-u^2}}.u'$
(13) $f(u)=a^u \Rightarrow f'(u)=a^u\cdot\ln a\cdot u'$	(30) $f(u)=\arccos u \Rightarrow f'(u)=\frac{-1}{\sqrt{1-u^2}}.u'$
(14) $f(x)=\ln\lvert x\rvert \Rightarrow f'(x)=\frac{1}{x}$	(31) $f(u)=arctgu \Rightarrow f'(u)=\frac{1}{1+u^2}.u'$
(15) $f(u)=\ln\lvert u\rvert \Rightarrow f'(u)=\frac{u'}{u}$	(32) $f(u)=arc\cot g\,u \Rightarrow f'(u)=\frac{-1}{1+u^2}.u'$
(16) $f(u)=\log_a\lvert x\rvert \Rightarrow f'(u)=\frac{1}{x.\ln a}$	(33) $f(u)=arc\sec u \Rightarrow f'(u)=\frac{1}{u.\sqrt{u^2-1}}.u'$
(17) $f(u)=\log_a\lvert u\rvert \Rightarrow f'(u)=\frac{1}{u.\ln a}.u'$	(34) $f(u)=\arccos ecu \Rightarrow f'(u)=\frac{-1}{u.\sqrt{u^2-1}}.u'$

Identidades Trigonométricas:

1) $sen^2 x + \cos^2 x = 1$

2) $tg\, x = \dfrac{sen\, x}{\cos x}$

3) $\cot g\, x = \dfrac{\cos x}{sen\, x}$

4) $\cot g\, x = \dfrac{1}{tg\, x}$

5) $\sec x = \dfrac{1}{\cos x}$

6) $\operatorname{cosec} x = \dfrac{1}{sen\, x}$

7) $1 + tg^2 x = \sec^2 x$

8) $1 + \cot g^2 x = \operatorname{cosec}^2 x$

9) $sen^2 x = \dfrac{1 - \cos(2x)}{2}$

10) $\cos^2 x = \dfrac{1 + \cos(2x)}{2}$

11) $\cos(2x) = \cos^2(x) - sen^2(x)$

12) $sen(2x) = 2\, sen\, x \cdot \cos x$

13) $\cos(a \pm b) = \cos a\, \cos b\ \mu\ sen\, a\, sen\, b$

14) $sen(a \pm b) = sen\, a \cos b \pm \cos a\, sen\, b$

15) $tg(a \pm b) = \dfrac{tg\, a\ \pm tg\, b}{1 \pm tg\, a\ tg\, b}$

	0°	30°	45°	60°	90°
	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
seno	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cosseno	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tangente	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	$\nexists$

Produtos Notáveis
$a^2 - b^2 = (a+b)\cdot(a-b)$
$(a \pm b)^2 = a^2 \pm 2ab + b^2$
$(a \pm b)^3 = a^3 \pm 3a^2b + 3ab^2 \pm b^3$
$a^3 \pm b^3 = (a\ \pm b)\cdot(a^2\ \mu\ ab + b^2)$