Tabelas

Regras de derivação

$f'(c\,x) = c\,f'(x)$

$(f(x) + g(x))' = f'(x) + g'(x)$

$(f(x)g(x))' = f'(x)g(x) + f(x)g'(x)$

$\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x)g(x) - f(x)g'(x)}{g(x)^2}$

$(x^n)' = n\,x^{n-1}$

$(c)' = 0$

$(e^x)' = e^x$

$(e^{g(x)})' = e^{g(x)}\,g'(x)$

$(ln(x))' = \frac{1}{x}$

$(ln(g(x)))' = \frac{g'(x)}{g(x)}$

Regras de integração

$\int f(x)\,dx = F(x) + C \qquad F'(x) = f(x)$

$\int c\,f(x)\,dx = c\int f(x)\,dx$

$\int (f(x) + g(x))\,dx = \int f(x)\,dx + \int g(x)\,dx$

$\int x^n\,dx = \frac{x^{n+1}}{n+1} + C$

$\int dx = x + C$

$\int e^x\,dx = e^x + C$

$\int \frac{1}{x}\,dx = ln\,|x| + C$

$\int e^{c\,x}\,dx = \frac{e^{cx}}{c} + C$

$\int f(x)g(x)\,dx = f(x)G(x) - \int f'(x)G(x)\,dx$

$\int \ln x\,dx = x\ln x - x + C$

Propriedades de ln e e^x

$$ln(xy) = ln(x) + ln(y) \qquad ln\left(\frac{x}{y}\right) = ln(x) - ln(y)$$

$$ln\left(\frac{1}{x}\right) = -ln(x) \qquad ln(x^b) = b\,ln(x)$$

$$ln(e^x) = x \qquad e^{ln(x)} = x$$

$$ln(x) = a \leftrightarrow e^a = x \qquad e^x e^y = e^{x+y}$$

$$\frac{e^x}{e^y} = e^{x-y}$$

Teoremas fundamentais do cálculo

1º teorema

$$\int_a^b f(x)\,dx = F(x) + C$$

$$\frac{d}{dx}(F(x) + C) = f(x)$$

Teorema de Newton-Leibniz

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