

Calculus & Analysis symbols

Symbol	Symbol Name	Meaning / definition	Example
$\lim_{x \rightarrow x_0} f(x)$	limit	limit value of a function	
ε	epsilon	represents a very small number, near zero	$\varepsilon \rightarrow 0$
e	E constant / Euler's number	$e = 2.718281828...$	$e = \lim (1+1/x)^x, x \rightarrow \infty$
y'	derivative	derivative - Lagrange's notation	$(3x^3)' = 9x^2$
y''	second derivative	derivative of derivative	$(3x^3)'' = 18x$
$y^{(n)}$	nth derivative	n times derivation	$(3x^3)^{(3)} = 18$
$\frac{dy}{dx}$	Derivative	derivative - Leibniz's notation	$d(3x^3)/dx = 9x^2$
$\frac{d^2y}{dx^2}$	second derivative	derivative of derivative	$d^2(3x^3)/dx^2 = 18x$
$\frac{d^ny}{dx^n}$	nth derivative	n times derivation	
\dot{y}	time derivative	derivative by time - Newton's notation	
\ddot{y}	time second derivative	derivative of derivative	
$D_x y$	Derivative	derivative - Euler's notation	
$D_x^2 y$	second derivative	derivative of derivative	
$\frac{\partial f(x, y)}{\partial x}$	partial derivative		$\partial(x^2+y^2)/\partial x = 2x$

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\int	Integral	opposite to derivation	$\int f(x)dx$
\iint	double integral	integration of function of 2 variables	$\iint f(x,y)dxdy$
\iiint	triple integral	integration of function of 3 variables	$\iiint f(x,y,z)dxdydz$
\oint	closed contour / line integral		
\oiint	closed surface integral		
\oiint	closed volume integral		
$[a,b]$	closed interval	$[a,b] = \{x \mid a \leq x \leq b\}$	
(a,b)	open interval	$(a,b) = \{x \mid a < x < b\}$	
i	imaginary unit	$i \equiv \sqrt{-1}$	$z = 3 + 2i$
z^*	complex conjugate	$z = a+bi \rightarrow z^*=a-bi$	$z^* = 3 - 2i$
\bar{z}	complex conjugate	$z = a+bi \rightarrow \bar{z} = a-bi$	$\bar{z} = 3 - 2i$
∇	nabla / del	gradient / divergence operator	$\nabla f(x,y,z)$
\overrightarrow{x}	Vector		
\hat{x}	unit vector		
$x * y$	Convolution	$y(t) = x(t) * h(t)$	
\mathcal{L}	Laplace transform	$F(s) = \mathcal{L}\{f(t)\}$	
\mathcal{F}	Fourier transform	$X(\omega) = \mathcal{F}\{f(t)\}$	

Symbol	Symbol Name	Meaning / definition	Example
δ	delta function		
∞	lemniscate	Infinity symbol	

Androprex