

# EASYMATH

*Slightly faster mathematical typesetting*

Tyler Griffiths

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## 1 Introduction

This L<sup>A</sup>T<sub>E</sub>X package provides a number of commands to make it easier to “live-T<sub>E</sub>X” mathematically-heavy lectures. It generally reflects the sorts of mathematics I’ve had to type during the course of an undergraduate Chemistry degree, taking an additional module in scientific computing (with a focus on partial differential equations).

**Table 2.1:** Symbols provided by EASYMATH.

Command	Example	Description
<code>\D</code>	$d$	Differential operator
<code>\E</code>	$e$	Euler’s number
<code>\Ey</code> , <code>\egy</code> , <code>\energy</code>	$\mathcal{E}$	Energy
<code>\ham</code>	$\mathcal{H}$	Hamiltonian operator

**Table 3.2:** Brackets provided by EASYMATH.

Command	Example	Description
<code>\br</code>	$(abc)$	Parentheses
<code>\abr</code>	$\langle abc \rangle$	Angle brackets
<code>\cubr</code>	$\{abc\}$	Curly braces
<code>\sqbr</code>	$[abc]$	Square brackets
<code>\bra</code>	$\langle \phi  $	Dirac “bra”
<code>\ket</code>	$ \psi \rangle$	Dirac “ket”
<code>\braket</code>	$\langle \phi   \psi \rangle$	Dirac “braket”
<code>\bramket</code>	$\langle \phi   A   \psi \rangle$	Dirac “braket” (mnemonic: <i>middle</i> )

Every command is wrapped in `\ensuremath` and so can be used in prose directly, without entering `$math mode$`.

## 2 Symbols

This package defines a few symbols, largely for later internal use.

## 3 Brackets

Several types of brackets are provided.

**Table 4.3:** Function commands provided by EASY-MATH.

Command	Example	Description
<code>\of</code>	$f(x)$	Correctly-spaced, correctly-sized, function argument.
<code>\upf</code>	$\text{abc}(abc)$	Upright multiletter function with argument.
<code>\ex</code>	$e^{(i\pi)}$	Exponential function with argument.
<code>\inv</code>	$\frac{1}{\rho}$	Inverse.
<code>\is</code>	$y \leftarrow ax^2$	Algebraic assignment.

**Table 5.4:** Differential functions provided by EASY-MATH.

Command	Example	Description
<code>\diffn</code>	$\frac{d^4y}{dx^4}$	$n$ th order ordinary differential.
<code>\diff</code>	$\frac{dy}{dx}$	First-order differential.
<code>\ddtn</code>	$\frac{d^6y}{dt^6}$	$n$ th order ordinary differential with respect to time.
<code>\ddt</code>	$\frac{dy}{dt}$	First-order ordinary differential with respect to time.
<code>\pdiffn</code>	$\frac{\partial^2y}{\partial x^2}$	$n$ th order partial differential.
<code>\pdiff</code>	$\frac{\partial y}{\partial x}$	First-order partial differential.
<code>\pdtn, \pddtn</code>	$\frac{\partial^2T}{\partial t^2}$	$n$ th order partial differential with respect to time.
<code>\pdt, \pddt</code>	$\frac{\partial \Gamma}{\partial t}$	First-order partial differential with respect to time.

## 4 Functions

Here are provided some common functions and useful snippets for writing them.

## 5 Differentials

Much of this package aims to make typesetting of differential equations faster. Utilities are provided for both partial and ordinary differentials.

**Table 6.5:** Integral functions provided by EASY-MATH.

Command	Example	Description
<code>\lint</code>	$\int_a^b f(x) \, dx$	Limited integral.
<code>\uint</code>	$\int g(r) \, dr$	Unlimited integral.

## 6 Integrals

A few commands are provided to make it easier to type integrals.