EASYMATH
Slightly faster mathematical typesetting

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1   Introduction

This LaTeX package provides a number of commands to make it easier to "live-TeX" 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
\D	d	Differential operator
\del	∂	Partial differential operator
\E	e	Euler's number
\Ey, \egy, \energy	$\mathcal{E}$	Energy
\ham	$\mathcal{H}$	Hamiltonian operator

Table 3.2: Brackets provided by Easymath.

Command	Example	Description
\br	(abc)	Parentheses
\abr	$\langle abc \rangle$	Angle brackets
\cubr	$\{abc\}$	Curly braces
\sqbr	$[abc]$	Square brackets
\bra	$\langle \phi|$	Dirac "bra"
\ket	$|\psi\rangle$	Dirac "ket"
\braket	$\langle \phi|\psi \rangle$	Dirac "braket"
\bramket	$\langle \phi|A|\psi \rangle$	Dirac "braket" (mnemonic: m$iddle$)

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
\tx	$\mathcal{E}_{\text{total}}$	A shorter alias for `\text`. Does not require {} in su{b,per}script.
\of	$f(x)$	Correctly-spaced, correctly-sized, function argument.
\upf	$\text{abc}(x)$	Upright multiletter `function` with argument.
\ex	$\mathrm{e}^{(i\pi)}$	Exponential function with argument.
\inv	$\frac{1}{\rho}$	Inverse.
\is	$y \Leftarrow ax^2$	Algebraic assignment.

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.

6 Integrals

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

Table 5.4: Differential functions provided by EASY-
MATH.

Command	Example	Description
\diffn	$\frac{\mathrm{d}^4 y}{\mathrm{d}x^4}$	nth order ordinary differential.
\diff	$\frac{\mathrm{d}y}{\mathrm{d}x}$	First-order differential.
\ddtn	$\frac{\mathrm{d}^6 y}{\mathrm{d}t^6}$	nth order ordinary differential with respect to time.
\ddt	$\frac{\mathrm{d}y}{\mathrm{d}t}$	First-order ordinary differential with respect to time.
\pdiffn	$\frac{\partial^2 y}{\partial x^2}$	nth order partial differential.
\pdiff	$\frac{\partial y}{\partial x}$	First-order partial differential.
\pdtn, \pddtn	$\frac{\partial^2 T}{\partial t^2}$	nth order partial differential with respect to time.
\pdt, \pddt	$\frac{\partial \Gamma}{\partial t}$	First-order partial differential with respect to time.

Table 6.5: Integral functions provided by EASY-
MATH.

Command	Example	Description
\lint	$\int_a^b f(x)\,\mathrm{d}x$	Limited integral.
\uint	$\int g(r)\,\mathrm{d}r$	Unlimited integral.