



TABLE OF SYMBOLS

SYMBOL	MEANING OF SYMBOL	PAGE # of first appearance
$=$	equal to	3
$\approx$	approximately equal to	10
$\clubsuit$	student input required	iv
$\star$	advanced material	iv
$\star\star$	more advanced material	iv
$\alpha, \beta, \gamma, \delta, \epsilon, \theta, \lambda, \mu, \pi, \rho, \tau, \phi, \omega, \Gamma, \Delta$	Greek letters	7
$\pi$	an important constant, $\pi \approx 3.14$	20
$e$	an important constant, $e \approx 2.72$	99
$\mathbb{R}$	set of real numbers	8
$\mathbb{C}$	set of complex numbers	19
$\mathbb{Z}$	set of integers	27
$\mathbb{Q}$	set of rational numbers	27
$>$	greater than	9
$<$	less than	9
$(x_1, x_2, \dots, x_n)$	$n$ -tuple	17
$(a, b)$	ordered pair	17, 41
$:=$	equal, by definition	18
$i := \sqrt{-1}$	imaginary number	19
$\in$	is an element of	22
$\notin$	is not an element of	22
$\{ \}$	set notation	22
$\{ x \mid \text{some property} \}$	set-builder notation	23
$(a, b), [a, b), (a, b], (a, \infty), (-\infty, b]$	interval notation	23
$\emptyset$	the empty set	24
$\iff$	is equivalent to	30, 271
If $A$ , then $B$	implication	165–167
$A \implies B$	implication, alternate notation	167
$\forall$	for all, for every	92
$\exists$	there exists	92
$!$	a unique	92
$\wedge, \vee, \neg$	synonyms for ‘and’, ‘or’, ‘not’	325
$m$	slope of a line	49
$ x $	absolute value of $x$	63
$ x - y $	distance from $x$ to $y$	116
$\ x\ $	norm symbol	141
$A \cup B$	set union	64, 82
$A \cap B$	set intersection	83
$A \subset B$	subset	83
$A - B$	set subtraction	195
$f, f(x)$	function notation	60
$\mathcal{D}(f)$	domain of a function	69
$\mathcal{R}(f)$	range of a function	88
$f: A \rightarrow B$	function notation	78
$f + g, kf, \frac{f}{g}, \sqrt{f}$	special functions	85, 86
$g \circ f$	composite function	86

$f^{-1}$	inverse function for $f$	94
$e^x$	the exponential function	99
$\ln x$	the natural logarithm function	100
$\lim_{x \rightarrow c} f(x) = l, \lim_{x \rightarrow c} f(x) = l$	limits (display and text style)	109, 121
as $x \rightarrow c, f(x) \rightarrow l$	alternate notation for limits	118
$\lim_{x \rightarrow c^+} f(x) = l$	right-hand limit	129
$\lim_{x \rightarrow c^-} f(x) = l$	left-hand limit	130
■	end-of-proof marker	133
$\frac{0}{0}, \frac{\infty}{\infty}, 1^\infty$	indeterminate forms	154–158
$f'$	the derivative function	194
$f'(x)$	the derivative of $f$ , at $x$	193
$\frac{dy}{dx}, \frac{dy}{dx}(c), \frac{dy}{dx} _{x=c}$	Leibniz notation for the derivative	204
$\frac{d}{dx}$	the $\frac{d}{dx}$ operator	204
$f'', f''', f^{(4)}, f^{(n)}$	higher order derivatives, prime notation	249
$\frac{d^2y}{dx^2}, \frac{d^ny}{dx^n}$	higher order derivatives, Leibniz notation	255
$\sqrt[n]{x}, \sqrt{x}$	radical notation	213
$x^{1/n}$	fractional exponent notation	216
$k!$	factorial notation	153
$\sum_{j=1}^n a_j, \sum_{j=1}^n a_j$	summation notation (display and text style)	251
$\frac{(+)(-)}{(-)}$	testing the sign of a function	284
$\times, \times, \otimes$	graphing symbols	309
$x \gg 0$	$x$ is much greater than 0	313
$x \ll 0$	$x$ is much less than 0	313
$f(c^+), f(c^-)$	investigating $f$ near $c$	335
$d(t), v(t), a(t)$	distance, velocity, acceleration functions	362–374
$g$	acceleration due to gravity	367
	vector	366
	free-body diagram	367
$\int f(x) dx$	indefinite integral	344
$\int_a^b f(x) dx$	definite integral	408
$F(x) _a^b$	notation used when evaluating definite integrals	409
$\int u dv = uv - \int v du$	integration by parts formula	391
$\ P\ $	norm of a partition	419
$R(P)$	Riemann sum	420

### TRUTH TABLES

$A$	$B$	$A$ and $B$	$A$ or $B$	$A \Rightarrow B$	$A \iff B$	not $B$
T	T	T	T	T	T	F
T	F	F	T	F	F	T
F	T	F	T	T	F	
F	F	F	F	T	T	