

## Standard Math Operators

### Four Kinds of Equal Signs

- $:=$  Assigns a value or the result of a calculation to a variable.
- $=$  Displays a value or the result of a calculation.
- $\equiv$  Symbolic equality; shows the relationship between variables.
- $\equiv$  Global assignment; these are evaluated before the rest of the worksheet.

### Predefined Variables

- $\pi$  3.141592... Press [Ctrl-Shift-p] or choose  $\pi$  from the Greek Symbols Toolbar.
- $e$  2.718281...
- $g$  9.8 m/s<sup>2</sup>
- $\%$  multiplies the displayed value by 100 and displays the percent symbol.

Symbol	Name	Shortcut Key
+	Addition	+
-	Subtraction	-
*	Multiplication	[Shift-8]
/	Division	/
$e^x$	Exponential	
$1/x$	Inverse	
$x^y$	Raise to a Power	[^], or [Shift-6]
$n!$	Factorial	!
$ x $	Absolute Value	
$\sqrt{\quad}$	Square Root	\
$\sqrt[n]{\quad}$	N <sup>th</sup> Root	[Ctrl-\]

### Entering Equations

- $+, -$  addition and subtraction.
- $*, /$  multiplication and division. Press [Shift-8] for the multiplication symbol.
- $\wedge$  exponentiation. Press [Shift-6] for the caret symbol.
- [Space] enlarges the currently selected region—used after typing in exponents and denominators.
- [Insert] moves the vertical editing line between the beginning and end of a selected region—used when you need to delete an operator to the left of a selected region.
- [.] text subscript.
- [[]] index subscript—used to indicate a particular element of an array.

### Matrix Operators

Symbol	Name	Shortcut Key
+	Addition	+
-	Subtraction	-
*	Multiplication	[Shift-8]
/	Division	/
$A_n$	Array Element	[
$M^{-1}$	Matrix Inverse	
$ M $	Determinant	
$\rightarrow$	Vectorize	[Ctrl- -]
$M^{\langle x \rangle}$	Matrix Column	[Ctrl-6]
$M^T$	Matrix Transpose	[Ctrl-1]
$M_1 \cdot M_2$	Dot Product	*, or [Shift-8]
$M_1 \times M_2$	Cross Product	[Ctrl-8]

### Operator Precedence

- $\wedge$  Exponentiation is performed before multiplication and division.
- $*, /$  Multiplication and division are performed before addition and subtraction.
- $+, -$  Addition and subtraction are performed last.

### Text Regions

- [“] Creates a text region—if you type in characters that include a space (i.e., two words), Mathcad will automatically create a text region around these characters.