The Equation Editor in Word (since 2007) is quite useful and fairly quick, when you know a few simple shortcuts. First, “Alt+=” will insert an equation.

All of these tips use the format “collection_of_symbols {space}”, where “{space}” is the space bar.

**Simple commands**

1) Subscripts & superscripts: use “_” and “^” respectively
   a. “x_1” becomes \( x_1 \)
   b. “x^2” becomes \( x^2 \)
   c. “x_f^2” becomes \( x_f^2 \)

2) Fractions: “a/b” becomes \( \frac{a}{b} \)

3) Parenthesis/brackets/absolute value: you can then enter anything (including fractions) into the empty box between the parens/brackets/braces/absolute value bars
   a. “()” becomes ( )
   b. “[ ]” becomes [ ]
   c. “{ }” becomes { }
   d. “| |” becomes | |

4) Parenthesis can also be used to group things:
   a. “5/(4+5+6)” becomes \( \frac{5}{4+5+6} \)
   b. “x^{(5-6i)}” becomes \( x^{5-6i} \)

5) Some things require double spaces:
   a. “x_t_f {space} {space}” becomes \( x_{t_f} \)

6) Functions: these automatically change from italicized to normal type
   a. “sin” becomes sin
   b. “cos” becomes cos
   c. “tan” becomes tan

7) To create a matrix, use the Matrix icon under the Design tab. If you need a matrix larger than 3x3, first insert a 3x3 matrix, then right-click on an element and move your mouse over Insert. This will give you the option of adding rows or columns above or below. You can also create a matrix with the Latex command shown below.
Latex commands

LaTeX is a special language (used mainly by mathematicians, but also engineers) to write technical papers, dissertations, etc. It makes writing math equations especially easy.

8) Greek letters: all Greek letters are accessible using “\letter_name”. Capitalizing the first letter of the name will give the capital version of the greek letter.
   a. “\mu” becomes $\mu$
   b. “\Gamma” becomes $\Gamma$
   c. “\Omega” becomes $\Omega$
   d. “\alpha” becomes $\alpha$

9) Square root: “\sqrt” becomes $\sqrt{\frac{3}{4}}$, which can then be followed by another expression. So, the expression “\sqrt{space} 34 {space}” becomes $\sqrt{34}$. (This can also be done using “\sqrt(34) {space}”)

10) Integral: “\int” becomes $\int$, which can be sub- and super-scripted by the limits of integration. So, the expression “\int_{0}^{1} x dx” becomes $\int_{0}^{1} x \, dx$.

11) Infinity: “\infty” becomes $\infty$

12) Sum: “\sum_{n=1}^{6} n^2 {space}” becomes $\sum_{n=1}^{6} n^2$

13) Operators:
   a. “x \bullet {space} y” becomes $x \cdot y$
   b. “1.5 \times {space} 10^5 {space}” becomes $1.5 \times 10^5$

14) Accents: These require double spaces. **Note:** there is no space between the “x” and the “\accent_name”.
   a. “x \dot {space} {space}” becomes $\dot{x}$
   b. “x \ddot {space} {space}” becomes $\ddot{x}$
   c. “x \bar {space} {space}” becomes $\bar{x}$
   d. By itself, “\bar {space} {space}” becomes $\bar{\phantom{}_{}}$

15) Matrices: The sequence “\matrix (a & b @ c & d) {space}” becomes $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$
   a. The parentheses have to enclose your entire matrix.
   b. Spaces before and within the parentheses don’t matter.
   c. Use “&” to separate columns and “@” to separate rows.

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