Word 2007- Equation Editor

Dr.ABBAS KHAMMAS HUSSEIN
2013
The equations editor in Word 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
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.

7) 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 $\alpha$

8) Square root: “\sqrt” becomes $\sqrt{\,}$, 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}”.)
9) Integral: “\int” becomes $\int$, which can be sub- and super-scripted by the limits of integration. So, the expression “\int_0^1 {space} x \, dx” becomes $\int_0^1 x \, dx$.

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

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

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

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

- Greek letters are accessible through their LaTeX commands. For example, \texttt{\textbackslash gamma} produces \(\gamma\) and \texttt{\textbackslash Gamma} produces \(\Gamma\).
- For script letters, precede the letter name with \texttt{\textbackslash script}. For example, \texttt{\textbackslash scriptL} produces \(\mathcal{L}\) and \texttt{\textbackslash scriptl} produces \(\ell\).
- For blackboard bold, precede the letter name with \texttt{\textbackslash double}. For example, \texttt{\textbackslash doubleQ} produces \(\mathbb{Q}\).
- Italiccs and boldface can be turned off and on using the ctrl+i and ctrl+b shortcuts, just like normal type.
- Most binary operators and symbols are also accessible using their LaTeX commands. For example:

\[
x \ \texttt{\textbackslash succ} \ y \text{ produces } x \succeq y\n\]
\[
\texttt{\textbackslash sum} \ (i=1)^n \ x_i \text{ produces } \sum_{i=1}^{n} x_i
\]
Formatting

- Accents can be quickly added by adding \texttt{\textbackslash accentname} after the character and pushing space twice. For example
  - \texttt{\textbackslash beta\hat} produces $\hat{\beta}$
  - \texttt{\textbackslash beta\bar} produces $\bar{\beta}$
  - \texttt{\textbackslash beta\tilde} produces $\tilde{\beta}$

- Braces can be added using the \texttt{\underbrace} and \texttt{\overbrace} commands. First type the command, then the space bar. Now use the arrow keys or mouse to enter text in the box. For example

\begin{align*}
\underbrace{E[X' \varepsilon]}_{(E[X' \varepsilon] = 0)} \quad \text{produces } E[X' \varepsilon] = 0
\end{align*}

- The commands \texttt{\below} and \texttt{\above} can be used to place limits on operators or to add text to objects with braces. Examples include
  - \texttt{\underbrace}
    \begin{align*}
    E[X' \varepsilon]\below (=0) \quad \text{produces } E[X' \varepsilon]. \text{ Note how parentheses are used to delimit the argument to below}
    \end{align*}
  - \texttt{y\rightarrow\above p\alpha}
    \begin{align*}
    \text{produces } y \xrightarrow{p} \alpha
    \end{align*}
Bracket sizes are automatically adjusted, so you don’t have to worry about the difference between \[ and \left[ \] like you do in LaTeX. For example, \([x]\) produces \([x]\) while \([x/y]\) produces \(\frac{x}{y}\). Note that in the previous example, you type space after typing the \(y\) to create the built-up fraction, then another space after typing the right brace to change the sizes of the braces. If you exit the equation (using the mouse or the spacebar) before typing space, the bracket size will not change.

Single quotes can be used to include plain text or to simulate operators. For example:

- "for any \(\varepsilon > 0\) produces for any \(\varepsilon > 0\)
- "plim \(\sum x\bar{\bar{\bar{\bar{\bar{\bar{x}}}}}}\) produces \(\text{plim} \sum x\bar{x}\)