Writing in Latex Using Word

Killian Anderson

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1 Introduction

You will learn to use the LaTex syntax directly in Microsoft Word. This allows you to quickly type complex formulas without searching through menus.

2 Quick Steps

Windows Machine:

- Press **Alt** + **=** to open the equation tool.
- Select the **LaTeX** button in the Equation tab.
- Type your code and press **Enter**.

MacOS X Machine:

- Press **Shift** + **Return** to open the equation tool.
- Select the **LaTeX** button in the Equation tab.
- Type your code and press **Return**.

3 Mathematical Expressions

Mathematical expressions may be written using LaTex through Word. You may read more specifically about mathematical expressions here at Microsoft's Documentation.

Superscripts and Subscripts: will be presented by the carrot symbol (`^`) for exponents and by the underscore symbol (`_`) respectively in their likeness. If the exponent or subscript has more than one character, place it in curly brackets {}. For example, the expression `x^2 + x_2` gives you $x^2 + x_2$ or the expressions `x_{j,k}^3` give you $x_{j,k}^3$.

Fractions: may be created using the built-in command. `\frac{numerator}{denominator}`. For example, the fraction `\frac{1}{2}` will appear as $\frac{1}{2}$.

Roots: may be represented by a couple of different built-in commands. The square root command is `\sqrt{expression}` and the n-th root command is `\sqrt[n]{expression}`. For example, `\sqrt{2}` is $\sqrt{2}$ and `\sqrt[3]{8}` is $\sqrt[3]{8}$.

Greek Letters: are written with a backslash followed by the letter's alliteration. For example `\alpha, \beta, \gamma, \delta` will yield $\alpha, \beta, \gamma, \delta$ and if you want uppercase `\Gamma, \Delta` shows Γ, Δ. Note that some uppercase Greek letters are not supported and must be coded.

Sums: may be represented with the built-in `\sum` command. To add limits, use (`_`) for the lower limit and (`^`) for the upper limit. For example, the summation $\sum_{i=0}^{10} i^5$ is commanded by `\sum_{i=0}^{10} i^5`.

4 Essential Examples

You may try the following below using the prior quick-steps for practice.

4.1 The Quadratic Formula

Code: `x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}`
Result:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

4.2 Standard Deviation

Code: `\sigma = \sqrt{\frac{\sum(x - \mu)^2}{N}}`
Result:

$$\sigma = \sqrt{\frac{\sum(x - \mu)^2}{N}}$$