Basic LaTeXcommands for Piazza

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This document is not a complete tutorial about LaTeXbut gives the basics commands which can be useful for the cooperative website:

`http://www.piazza.com`.

LaTeXis a kind of scientific word processing language, it is designed to generate high quality scientific material (equation, graphics, ...). Basically, it is close to a programming language you need to compile to get your formatted document. In the case of Piazza, you don't need to manage the formatting setting of your document but you can simply use the mathematical LaTeXcommands to generate equations in your questions or answers. Consequently, I will note describe how to set up a complete LaTeXdocument in this tutorial, if you are interested to learn more about LaTeX, you can freely refer to the wikibook which is available online at `http://en.wikibooks.org/wiki/LaTeX` (a pdf version is also available).

In piazza, to use the LaTeXcommands you just need to use open and close your commands with the following tags: \$\$command\$\$. For example if you want to write $f(x,y)$ you may type \$\$f(x,y)\$\$ it's just simply as this! Below are some useful command to write equations, the \$\$ is not indicated but don't forget it to use those commands on piazza!

Purpose	Example	LaTeXcommand
Power	x^{3b}	x^{3b}
Indice	x_{3b}	x_{3b}
Power + Indice	x_a^b	x_a^b
Roots	$\sqrt{x}$ $\sqrt[n]{x}$	\sqrt{x} \sqrt[n]{x}
Brackets	$(), \{}, []$	(),\{\},[]
Set of real numbers	$\mathbb{R}$	\mathbb{R}
Fraction	$\frac{a}{b}$	\frac{a}{b}
Sum	$\sum_{i=1}^{N} P(i)$	\sum_{i=1}^{N}P(i)
Integrals	$\int_a^b f(x)dx$ $\int_R f(x,y)dA$ $\int_a^b \int_c^d f(x,y)dxdy$	\int_{a}^{b}f(x)dx \int_{R}f(x,y)dA \int_{a}^{b}\int_{c}^{d}f(x,y)dxdy
Useful symbols	$\in$	\in
	$\subset$	\subset
	$\leq, \geq$	\leq,\geq
	$\sim$	\sim
	∞	\infty
	$\leftarrow, \rightarrow$	\leftarrow,\rightarrow
	$\Leftarrow, \Rightarrow$	\Leftarrow,\Rightarrow
	$\Leftrightarrow$	\Leftrightarrow

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Purpose	Example	LaTeXcommand
	$\forall$	\forall
Most used Greek letters	α	\alpha
	β	\beta
	γ	\gamma
	δ	\delta
	ϵ	\epsilon
	η	\eta
	θ	\theta
	λ	\lambda
	μ	\mu
	ν	\nu
	π	\pi
	ρ	\rho
	σ	\sigma
	φ	\varphi
	ϕ	\phi
	τ	\tau
	ψ	\psi
	ω	\omega
	Δ	\Delta
Limit	$\lim_{n\rightarrow +\infty} u_n = A$	\lim_{n\rightarrow +\infty}u_{n}=A

For example, if we want to write the definition of a double integral as the limit of the Riemann sum:

$$\int_a^b \int_c^d f(x,y)dydx = \lim_{m,n\rightarrow +\infty} \sum_{i=1}^{m} \sum_{j=1}^{n} f(x_i^*, y_j^*)\Delta A$$

the corresponding LaTeXcommand is

```
\int_{a}^{b}\int_{c}^{d}f(x,y)dydx=
\lim_{m,n\rightarrow +\infty}\sum_{i=1}^{m}\sum_{j=1}^{n}f(x_{i}^{*},y_{j}^{*})\Delta A
```