# Examples

|  |  |
| --- | --- |
|  |  a**^**i+b**\_(**j+1**)**+c\_l^h (note the space) |
| , , , , ,  | R, **"R"**, **\scriptR**, **\doubleR**, **\frakturR**, R |
| , , , , , , ,  | i, **\iota**, l, **\ell**, **\epsilon**, **\varepsilon**, **\phi**, **\varphi** |
| , , Ⅎ | **\emptyset**, **\infty**, 2132 (hex [Unicode](http://en.wikipedia.org/wiki/List_of_Unicode_characters)) |
| , , , , ,  | a**\vec**, a**\hvec**, a**\hat**, a**\check**, a**\tilde**, **(**ab**)**\vec |
| , , ,  | a**\acute**, a**\grave**, a**\breve**, 0311 a |
| , ,  | 𝑎’ (same as a**\prime**), a’’, a**\pprime** |
| , , , ,  | a**\dot**, a**\ddot**, 030a a, a**\above\circ**, a\above **"o"** |
| , ,  | f**\bar**, \overbar f, **\overbar**(fg), (fg)\bar |
| , , ,  | f**\ubar**, \underbar f, **\underbar**(fg), (fg)\ubar |
| ,  | **\rect** a, a\_**"\rect"** (also a\_**\\rect**) |
| , , ,  | **|**a**|**, **\norm** a**\norm**, **\lfloor** a**\rfloor**, **\lceil** a**\rceil** |
| , , ,  | **\sqrt** a, **\cbrt** a, **\qdrt** a, **\sqrt**(n**&**a) (or **\root** n**\of** a) |
| , ,  | a**\cdot** b, a**\times** b, **\bra** a,b**\ket** |
| , , ,  | a**\***b, a**\star** b, a**\oplus** b, a**\otimes** b |
| , , , ,  | a**\vee** b, a**\wedge** b, **\neg** a, **^**a, **~**a |
| , , ,  | a**<=**b, a**/=**b, a**~=**b, a**\approx** b |
| , , ,  | a**\sim** b, a**\propto** b, a**/\in** B, A**/\subseteq** B |
| , , ,  | A**\cup** B, A**\cap** B, A**\setminus** B, A**\sqcup** B |
| , ,  | f :a**->**b (or **\to**, **\rightarrow**), a**\mapsto** b, a**\Longleftrightarrow** b |
| , , ,  | L**+**1, L**-**1, L**"+"**1, L**"2013"**1 (en-dash) |
| , , ,  | m**\times** n, m**"\times"**n, d**=**1, d**"="**1 |
| , , ,  | 1**...**n (or **\ldots**), a**\cdots** b, **\vdots**, **\ddots** |
| , ,  | (**\matrix**(0**@**1)), (0**\atop** 1), **\pmatrix**(1**&**2**@**3**&**4) |
| , ,  | Z**\hairsp** p (1/18em), Z**\thinsp** p (3/18), Z**\nbsp** p (or ) |
| , ,  | **\sum**\_i a\_i, **\prod**\_(i=1)^n a\_i, **\int**\_0^1 f(x)**\dd** x |
| ,  |  **\iiint**\_V f, **\coint**\_(\partial\Sigma) **\zwsp** (zero-width arg) |
| , , , , ,  | a**/**b, a**\/**b, a**\ldiv** b, a**\sdiv** b, a**\div** b, ribbon UI fraction  |
|  | "arg max" **\below**(\phi,T) **\funcapply** f\_(\phi,T) |
|  | f={**\eqarray**(a**@** b" if "y)**\close** or f=**\cases**(a**@** b" if "y) |
|  | f={**\matrix**( a**@** b" if "y)**\close** "Column Alignment" → Left on  |
|  | f={**\matrix**(a+b**&**" if "a<5@c**&**"otherwise.")\close |
|  |  **\smash**(f^g^h) (reduce vertical space) |
| ,  |  {x**\mid** f\_x>0}, {x\mid f\_x>0**\vphantom** A^A^A } (taller) |
| ,  | \**hsmash** U "\thinsp I", a\hsmash"\otimes" "\oplus" b  |
|  | First apply red text color to  , then apply black text color to . |

# Useful links

Murray Sargent’s [reference document](http://www.unicode.org/notes/tn28/UTN28-PlainTextMath-v3.pdf) and [blog](http://blogs.msdn.com/b/murrays/).

# Equation numbering

This equation is created using a table:

|  |  |  |
| --- | --- | --- |
|  |  | 1.
 |

It renumbers automatically if copied. We replace its content:

|  |  |  |
| --- | --- | --- |
|  |  | 1.
 |

Creating a reference to “Equation (2)” involves two steps:

* Click on the “2” to the right side of the equation, and perform Insert → Bookmark with some name such as eq\_x.
* Type “Equation ” and perform Insert → Cross-reference → BookMark → Paragraph number and select eq\_x.

See also these [macros](http://research.microsoft.com/~dongyu/Office2007EqnNumber.txt) for equation numbers (Office 2007/2010).

# Line spacing

Within a paragraph, formulas such as f^g^h may be taller than the paragraph text, e.g., , resulting in uneven vertical spacing. Instead, we can ignore vertical size using **\smash**(f^g^h) to create the formula which does not alter the line spacing.

An alternative used in this paragraph is to force the paragraph line spacing to a specific value, here 10pt – thus we get .

# Display versus inline

*Display mode*: A paragraph containing just a math formula, without any characters before or after the formula, is auto-centered. (The period is *inside* the formula.)

*Inline mode*: To obtain this more compact style, append a space after the formula (or place the period outside the formula) and set paragraph formatting to “center”:

.

To preserve display-mode, insert text inside math using double-quotes, e.g., **" where "** in:

i.e.: \sum\_i a+b**"** where **"** a/=b..

# Horizontal alignment

To align these two equations, we select each “=” and right-click-select Align at this Character.

Some large equations can be made to fit by using an almost imperceptibly smaller font size (here 8.5pt instead of 9pt):

# Other built-in examples

[Hugues Hoppe](http://hhoppe.com/) (Microsoft Research) 2014-08-27