Test for LaTeX Environment

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Abstract

This is a basic document for testing LaTeX environment.

1 Font

This document is a sample document to test font families and font typefaces.
qcr This text uses a different font typeface 0123456789
cmr This text uses a different font typeface 0123456789
lmr This text uses a different font typeface 0123456789
lmdh This text uses a different font typeface 0123456789
qtm This text uses a different font typeface 0123456789
qpl This text uses a different font typeface 0123456789
qbk This text uses a different font typeface 0123456789
qcs This text uses a different font typeface 0123456789
ptm This text uses a different font typeface 0123456789
lmtt This text uses a different font typeface 0123456789

1.1 Garamond

Garamond is my favorate font compared with classic fonts embeded in LaTeX.

```
\usepackage[lining]{ebgaramond}
```
This is

2 Footnote

Footnotes[1] can be a nuisance. This is especially true if there are many.[2] The more you see them, the more annoying they get.[3]

3 Quote

Blah blah blah blah blah blah blah blah blah blah blah.

> Next to the originator of a good sentence is the first quoter of it.
> *Ralph Waldo Emerson*

Blah blah blah blah blah blah blah blah.

4 Center

Blah.
Blah blah blah. Blah blah blah blah blah
blah blah blah blah blah blah blah blah blah blah.

5 Tabular

Country List		
Country Name or Area Name	ISO ALPHA 2 Code	ISO ALPHA 3
Afghanistan	AF	AFG
Aland Islands	AX	ALA
Albania	AL	ALB
Algeria	DZ	DZA
American Samoa	AS	ASM
Andorra	AD	AND
Angola	AO	AGO

[1] A footnote is a note of reference, explanation, or comment that is usually placed below the text on a printed page.

[2] Like here.

[3] Got it?

Col1	Col2	Col2	Col3
1	6	87837	787
2	7	78	5415
3	545	778	7507
4	545	18744	7560
5	88	788	6344

Table 1: Table to test captions and labels(Actually, this is one of most used style for academic published result.)

6 Itemize

- First item.
- Second item. Text works as usual here.
- Third item is a list. Different labels here.
  - First nested item.
  - Second item.

7 Math

7.1 Inline Formula

Here is an inline formula: $V = \frac{4\pi r^3}{3}$.

7.2 Displayed Formula

And appearing immediately below is a displayed formula:

$$V = \frac{4\pi r^3}{3}$$

7.3 Block

Joined Hypothesis:

$$H_0 : \forall a_i = 0; H_a : \exists a_i \neq 0; \tag{1}$$

7.4 Use Package

`\usepackage{amsmath}`

7.4.1 Align

One Example:

$$\begin{aligned} 2x - 5y &= 8 \\ 3x + 9y &= -12 \end{aligned}$$

Another example:

$$\begin{aligned} x &= y & w &= z & a &= b + c \\ 2x &= -y & 3w &= \frac{1}{2}z & a &= b \\ -4 + 5x &= 2 + y & w + 2 &= -1 + w & ab &= cb \end{aligned}$$

7.4.2 Split

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &= \frac{1}{2}\pi r^2 \end{aligned} \tag{2}$$

7.4.3 Multline

$$p(x) = 3x^6 + 14x^5y + 590x^4y^2 + 19x^3y^3 - 12x^2y^4 - 12xy^5 + 2y^6 - a^3b^3$$

7.4.4 Subequations

Maxwell's equations:

$$B' = -\nabla \times E, \tag{3a}$$

$$E' = \nabla \times B - 4\pi j, \tag{3b}$$

7.5 Use of Symbols

It is so convenient to use `\[` and `\]` to block one equation.

$$A \stackrel{!}{=} B; A \stackrel{!}{=} B$$

7.5.1 Brace

$$z = \overbrace{\underbrace{x}_{\text{real}} + i \underbrace{y}_{\text{imaginary}}}^{\text{complex number}}$$

7.6 Box

$$\boxed{x^2 + y^2 = z^2} \tag{4}$$

7.7 Label

$$5^2 - 5 = 20 \tag{5}$$

this references the equation 5.

7.8 Case

```
\usepackage{cases}
```

$$|x| = \begin{cases} x, & \text{for } x \geq 0 \quad (6) \\ -x, & \text{for } x < 0 \quad (7) \end{cases}$$