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- 03 Packages

Using LaTeX packages

Use packages in LaTeX to add more functions.
Demonstration of amsmath package and basic math typesetting.

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1. Install a package
2. Purpose of packages
3. Using / Including a package

LaTeX offers a lot of functions by default, but in some situations it can become handy to use so called *packages*. To import a package in LaTeX, you simply add the `\usepackage` directive to the *preamble* of your document:

```
\documentclass{article}
```

```
\usepackage{PACKAGENAME}
```

使用一个LaTeX的外部包

```
\begin{document}
```

```
...
```

Install a package

When using Linux or Mac, most packages will already be installed by default and it is usually not necessary to install them. In case of Ubuntu installing *texlive-full* from the package manager would provide all packages available. The MiKTeX bundle in Windows, will download the package if you include it to your document.

Purpose of packages

There are countless packages, all for different purposes in my tutorials I will explain some of the most useful. To typeset math, LaTeX offers (among others) an *environment* called *equation*. Everything inside this environment will be printed in *math mode*, a special typesetting environment for math. LaTeX also takes care of equation numbers for us:

注意 `equation` 是一个环境变量，而不是一个指令
既然是环境变量，那么就需要跟在 `begin` 的后面
并且会自动地进行编号

```
\documentclass{article}
```

```
\begin{document}
```

```
\begin{equation}
```

```
f(x) = x^2
```

```
\end{equation}
```

```
\end{document}
```

This will result in the following output: $f(x) = x^2$ (1)

Using / Including a package

The automatic numbering is a useful feature, but sometimes it's necessary to remove them for auxiliary calculations. LaTeX doesn't allow this by default, now we want to include a package that does:

```
\documentclass{article}
```

```
\usepackage{amsmath}
```

```
\begin{document}
```

```
\begin{equation*}
```

```
f(x) = x^2
```

```
\end{equation*}
```

Now we get the same output as before, only the equation number is removed: $f(x) = x^2$

Summary

- Packages add new functions to LaTeX
- All packages must be included in the *preamble*
- Packages add features such as support for pictures, links and bibliography

Next Lesson: Lesson 4 (/tutorials/amsmath/)

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