

Using Maths Environments

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Maths is a pretty fundamental area with Latex, and with Tex! Normally, environments require the standard `\begin{...} \end{...}` format. However, as it was assumed that maths stuff would be frequent in most documents you created, then some short cuts were also added. You are free to use the standard approach, but there are also two shortcuts: one being the Latex way, and the other being the Tex way.

1 Text environments

A text maths environment is one that displays the mathematical equation/symbol inline, with the current text. This is opposed to the displayed environments, as we shall see later, that separate the maths from the text. So, if we wanted to mention that $a + a = 2a$ within current sentence, then this environment is the best to use.

Method	Command	Output
Standard	<code>\begin{math}a + a = 2a\end{math}</code>	$a + a = 2a$
Latex	<code>\(a + a = 2a\)</code>	$a + a = 2a$
Tex	<code>\$a + a = 2a\$</code>	$a + a = 2a$

Table 1: Ways to use the text maths environment

2 Displayed environments

2.1 `displaymath`

Displayed maths environments position the maths within it differently. It's separate from the preceding text (and subsequent text for that matter) as well as centered. It's also possible to number equations that are in this mode. So, if we wanted to state that the equation to find the volume of a sphere is:

$$\frac{4}{3}\pi r^2$$

Even though in the Latex source file, the maths command is at the end of the previous paragraph, Latex will not display it inline, as we can see.

2.2 `equation`

The `equation` environment is almost identical to that of `displaymath`, with the exception being that equation numbers are also added along side the displayed mathematics. This is useful for documents that contain many mathematical formulas and

Method	Command
Standard	<code>\begin{displaymath}\frac{4}{3}\pi r^2\end{displaymath}</code>
Latex	<code>[\frac{4}{3}\pi r^2]</code>
Tex	<code>\$\$\frac{4}{3}\pi r^2\$\$</code>

Table 2: Ways to use the displayed maths environment

you wish to cross-reference them in the main text. For example, see equation 1 for the formula for binomial distribution. Unfortunately, there is no shorthand way to enter the equation environment, just the usual `\begin{...} ... \end{...}`.

$$b(k;n,x) = \binom{n}{k} x^k (1-x)^{n-k} \quad (1)$$