Some Examples of Equation-Writing in LATEX  
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December 20, 2002

# 1. Writing a Simple Equation

To display an unnumbered equation on a new line, just type: *[ x’ = 2x - 3 ]*. This will display as:

If we want to get a numbered equation, we must type:

*begin{equation}*

*x’ = 2x - 3*

*end{equation*}. This will display as:

|  |  |  |
| --- | --- | --- |
|  |  | (1) |

Now, suppose we want to write a differential equation in another form. Try, *[frac{dy}{dt} = 2y + 8 ]*. This displays as:

or, we may write *$$ y\_t = 2y + 8$$*:

Now, suppose we have a partial differential equation. To write it with the partial derivatives, we just do:

*$$ frac{partial2 u} {partial2 x} + frac{partial2 u} {partial2 y} = 0 $$*. This displays as:

Or, we may write *$$ u\_{xx} + u\_{yy} = 0 $$*, which displays as:

To add text to an equation do for example,:

*$$ y=mx+b, text{ where $m$ is the slope, } x in (-infty, infty) $$*. This displays as:

. Note: You need to have included the amstext package at the beginning of the document (after the *documentclass* command.

If we want to write an equation with a two-line right-hand-side,

|  |  |  |
| --- | --- | --- |
|  |  | (2) |

To write several equations together, we do the following:

|  |  |  |
| --- | --- | --- |
|  |  | (4) |

# 2. More complicated expressions

Here is how we would write a matrix:

To write a system of equations:

|  |  |  |
| --- | --- | --- |
|  |  | (1) |