Mathematics Examples

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Attempt to reproduce the equations in this document! You may need to look at the examples given in the links on the course page entitled *Mathematics — More*.

1 The `math` environment

Here are some straightforward examples: $y = x^2$, $y = \sin x$.

2 The `displaymath` environment

Three examples:

$$\frac{x}{y} = z$$

$$\left(\frac{x}{y} + 3\right) = z$$

And now a harder one:

$$t = \frac{X_1 - X_2}{\sqrt{\mathcal{P}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}.$$

3 The `equation` environment

Derivatives and greek letters:

$$\epsilon \frac{\mathrm{d}^2\psi}{\mathrm{d}t^2} = -\psi. \tag{1}$$

4 The `eqnarray` environment

This environment is for use when you want to align equations with the equals sign or some other convenient point.

$$\epsilon \frac{\mathrm{d}^2\psi}{\mathrm{d}t^2} = -\psi \tag{2}$$

$$q\frac{\partial p}{\partial t} = -\nabla . J_p - qR \tag{3}$$

5 Fine points

The first version is just plain wrong; the second is suitable for publication:

$$\log y = \int_0^\infty \sin x dx$$

$$\log y = \int_0^\infty \sin x \, \mathrm{d}x$$