

Hello world.

Ordinary text (that is non mathematical text) is just typed as usual ordinary text. But LaTeX will decide where the line breaks are.

A new paragraph is started by leaving one or more blank lines.

So this is a new paragraph.

The basic quadratic equation is  $ax^2 + bx + c = 0$ .

This can be done in one line

$$ax^2 + bx + c = 0.$$

But it is usually easier to read your code if you make it look displayed

$$ax^2 + bx + c = 0.$$

(LaTeX will not care, but if you are looking at your code a month after writing it you will.)

Let us give a slightly more complicated displayed equation which gives a good idea of what general LaTeX looks like:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

A basic formula in much of analysis is the sum of a geometric series

$$\frac{a}{1-r} = a + ar + ar^2 + ar^3 + ar^4 + \dots = \sum_{n=0}^{\infty} ar^n$$

which converges for  $|r| < 1$ . Thus if

$$S = 3 + 3x + 3x^2 + 3x^3 + \dots = \sum_{n=0}^{\infty} 3x^n$$

we have

$$S = \frac{3}{1-x}$$