

# LaTeX Tutorial

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## 1 Introduction

I can type sentences and paragraphs just by typing. A new line doesn't do anything really but it helps you see your text easier and track changes better. I like to start a new line for each sentence.

A blank line, however, does start a new paragraph. You can force line breaks with double backslashes but I wouldn't advise this. Be careful with some special characters when typing such as ampersands, percentage, dollar, at symbol etc. To show these as text, use a backslash before: %, \$, &, \$. But these shouldn't come up regularly anyway. For single quotation marks, use 'at the start and' at the end. For double quotes, use "and". If you didn't, the left one would look "weird".

## 2 Typesetting maths

You can add maths inline using  $x = mx + b$ , or  $x = mx + b$ . You can put it on its own line using

$$A\Sigma + \Sigma A^T = B$$

But I typically use an equation *environment*

$$\int_{-\infty}^{\infty} e^{-x^2} dx = \sqrt{\pi} \quad (1)$$

Or the same way but not with numbering

$$\int_{-\infty}^{\infty} e^{-ax^2} dx = \sqrt{\frac{\pi}{a}}$$

Importing other packages can bring other ways of typesetting maths, eg the `amsmath` package brings the `align` environment, which works the same way but also allows you to split equations across multiple lines

$$\sin(2\theta) = 2 \cos(\theta) \sin(\theta) \quad (2)$$

$$= 1 - 2 \cos^2(\theta). \quad (3)$$

The double backslash starts a new line and the ampersands are the anchor points for each line. For more information on breaking across multiple

TEMPERATURE SCALES				
UNIT	WATER FREEZING POINT	WATER BOILING POINT	NOTES	CURSEDNESS
CELSIUS	0	100	USED IN MOST OF THE WORLD	2/10
KELVIN	273.15	373.15	0K IS ABSOLUTE ZERO	2/10
FAHRENHEIT	32	212	OUTDOORS IN MOST PLACES IS BETWEEN 0-100	3/10
RÉAUMUR	0	80	LIKE CELSIUS, BUT WITH 80 INSTEAD OF 100	3/8
RÖMÉR	7.5	60	FAHRENHEIT PRECURSOR WITH SIMILARLY RANDOM DESIGN	4/10
RANKINE	491.7	671.7	FAHRENHEIT, BUT WITH 0° SET TO ABSOLUTE ZERO	6/10
NEUTON	0	33.194	POORLY DEFINED, WITH REFERENCE POINTS LIKE "THE HOTTEST WATER YOU CAN HOLD YOUR HAND IN"	7.194/10
WEDGEWOOD	-8	-6.7	INTENDED FOR COMPARING THE MELTING POINTS OF METALS, ALL OF WHICH IT WAS VERY WRONG ABOUT	9/10
GALEN	-4?	4??	RUNS FROM -4 (COLD) TO 4 (HOT). 0 IS "NORMAL" (?)	4/-4
REAL CELSIUS	100	0	IN ANDERS CELSIUS'S ORIGINAL SPECIFICATION, BIGGER NUMBERS ARE COLDER; OTHERS LATER FLIPPED IT	10/0
DALTON	0	100	A NONLINEAR SCALE; 0°C AND 100°C ARE 0 AND 100 DALTON, BUT 50°C IS 53.9 DALTON	53.9/50

Figure 1: Caption

lines and and different ways of numbering, look up and have a go with other environments. For example, using subequations, `align`:

$$\sin(2\theta) = 2 \cos(\theta) \sin(\theta) \quad (4a)$$

$$= 1 - 2 \cos^2(\theta). \quad (4b)$$

Using `equation`, `aligned`:

$$\begin{aligned} \sin(2\theta) &= 2 \cos(\theta) \sin(\theta) \\ &= 1 - 2 \cos^2(\theta). \end{aligned} \quad (5)$$

### 2.1 Lipsum

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