

LaTeX Tutorial

Jeremy Worsfold

June 2025

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

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

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	OK 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

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus.

Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero

dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetur.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.