

L3cture app

We will be using a smartphone app developed by a recent MMath graduate in this course.

To take part, before next Thursday you should

- install the L3cture app (Walsh Tech Solutions Ltd);
- start the app and register for an account with your standard username (e.g. sma16xx) in the student username box;
- click 'My modules' and register for MAS115.

I will send these instructions in an email.

If you haven't got a smartphone, or don't want to take part, that's OK.

What is \LaTeX ?

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Let's look at each of these in turn.

L^AT_EX

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Structuring a document

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You can even go as far as subsubsections!

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\LaTeX will then display the two chunks of text as separate paragraphs.

Letting the computer decide

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Tweaking the layout should be kept to a minimum. Trying to control things too much often ends up with the document looking worse!

Margin-width and readability

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It is possible to alter the margin size using the `geometry` package. But before you do, you should ask: is this better for the reader?

Activity. Look at the two circulated documents (also available on the course website) which have the same \LaTeX code, but differ in their preamble.

In pairs or threes, find at least 5 differences in how the document displays and discuss which one you prefer (no right answer!). Also count an average line-length for each document. Do you have strong opinions about margins?

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- Document 2 uses small capitals for emphasised text, whereas Document 1 uses italics.
- The formatting of the title and sections are different.

TeXworks

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There are different text editors which can be used for entering and processing \LaTeX . One alternative is TeXmaker, which we will look at in a future computer lab.

PDFLaTeX

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MiKTeX

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There are links to the downloads on the course webpage.

Homework reminder

In response to the question

'Let $y = e^x \cos x$. Show that the stationary points on the curve occur precisely where $\tan x = 1$.'

a student handed in the following.

$$\begin{aligned}\frac{dy}{dx} &\rightsquigarrow e^x - \sin x + e^x \cos x \text{ (chain rule)} \\ &= e^x(\cos x - \sin x) = 0. \\ \cos x &= \sin x \\ \tan x &= 1.\end{aligned}$$

Your job is to re-write this badly written solution using \LaTeX .

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- You should present the solution like the second re-write in the Week 1 lecture.

The area A for a circle with radius r is given by $A = \pi r^2$. Thus $r^2 = \frac{A}{\pi}$ and so $r = \sqrt{A/\pi}$, since $r > 0$. When $A = 10$ this gives $r = \sqrt{10/\pi}$. Hence, when the area of the circle is 10cm^2 its radius is $\sqrt{10/\pi} \approx 1.78\text{cm}$.

- Include a title 'MAS115: Presentation Homework 1' and your name as the author.

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- Remember to use commands like \sin and \cos in your solution.
- Don't use very much display-math (double dollars); instead, write in paragraphs.
- Print out your document and hand it in at this week's computer lab.

About Computer Lab 2

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and how to typeset things like

$$\Gamma(x) \equiv \lim_{x \rightarrow 0} \prod_{v=0}^{n-1} \frac{n! n^{x-1}}{x + v}.$$