

Basic Text Formatting

You can make your text **bold** or *italic*. You can also use *emphasis*, which may render as either bold or italic. You can also render your text in **typewriter font** or SMALL CAPS. If you want to write a period in mid-sentence (e.g. “J. R. Ewing”), follow it with a backslash-space to get the inter-word spacing right. Quotes are written ‘single’ and “double”. Use a double back-slash to insert an explicit line break.

To start a new paragraph, just leave a blank line. Paragraphs are automatically indented, unless you use the “noindent” command.

This paragraph is not indented. Paragraphs inside list environments like those below aren’t indented either.

You can create a bulleted list:

- First bullet;
- Second bullet;
- Third bullet;

or a numbered list:

1. First bullet;
2. Second bullet;
3. Third bullet;

These can have as much text or other stuff in each item as you want. A useful list trick for homeworks is to format your solution as a list labeled with the parts of a problem:

- (a) This is the answer to the first part.
- (b) This is the answer to the second part.
- (c) This is the answer to the third part.

If you have program output or similar that you want to format exactly as it appears on your screen, you can use the “verbatim” environment, which does not recognize any markup:

```
Now          Good          $$of$$
  Is         All Men       Aid CSE247.
    The   For   To       \\The\\
      Time           Come.....To
```

Your text may include characters like ä, é, ù, ô, ı, ç, ñ, ã, and so forth. No problem!

Finally, to insert an explicit page break, say “newpage”.

Fun with Math

LaTeX math can be written inline – $z^2 + \sum_{x=0}^5 y = c$ – or as displayed equations:

$$z^2 + \sum_{x=0}^5 y = c.$$

LaTeX can do any kind of math you can imagine, but here are a few examples to get you started. Subscripts, superscripts, limits, logs, and fractions:

$$\lim_{n \rightarrow \infty} \frac{n^2}{n \log n} = \infty.$$

Sums, big parentheses, and other craziness:

$$\sum_{i=1}^n i^7 = \left(\frac{n^2(3n^4 + 6n^3 - n^2 - 4n + 2)(n+1)^2}{24} \right).$$

$$\cos(\alpha) + \cos(\beta) = 2 \cos \left[\frac{\alpha + \beta}{2} \right] \cdot \cos \left[\frac{\alpha - \beta}{2} \right].$$

$$O(n), o(n), \Omega(n), \omega(n) \dots \Theta(n)!$$

$$\lceil n/2 \rceil, \lfloor n/2 \rfloor, \left\lceil \frac{(n+1)}{2} \right\rceil$$

If you need to write multi-character variable names in math mode, use “`\mathrm`” like this:

$$\text{force} = \text{mass} \times \text{acceleration}.$$

A nifty trick for writing derivations is the “`\eqnarray*`” environment. It can align a sequence of formulas like this:

$$\begin{aligned} T(n) &\leq 3 + 4n + 2 + \sum_{i=1}^n (2n - i) \\ &= 5 + 4n + 2n \sum_{i=1}^n 1 - \sum_{i=1}^n i \\ &= 5 + 4n + 2n^2 - \frac{n(n+1)}{2} \\ &= 3n^2/2 + 7n/2 + 5. \end{aligned}$$

If you need fancier alignment support, include the “`amsmath`” package and look at the “`\align`” command.

Tables and Figures

The “tabular” environment lets you create a table with your choice of column alignment and row/column lines. To draw a table (or any other stuff) centered on the page, with some space before and after, you can use the “center” environment:

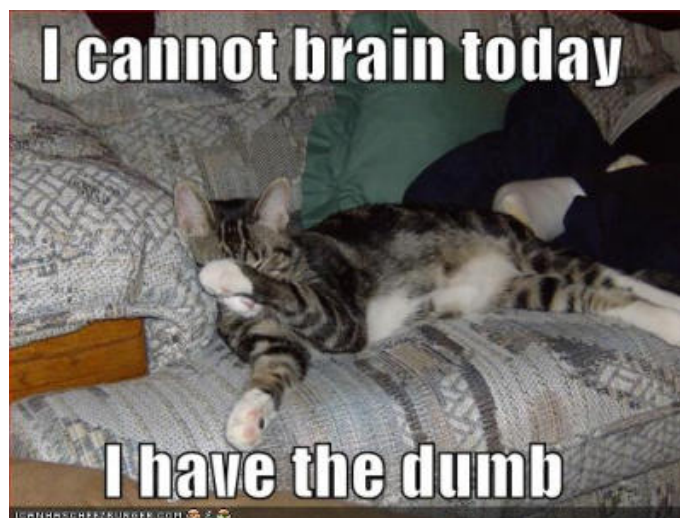
x	y	z	w
1	2	n^3	4
foo	bar	baz	quux

To insert a figure, you can use the “includegraphics” command, which can also go in a center environment. Use the width and/or height arguments to size your image.



Go read the documentation about floating figures (the “figure” and “table” environments) if you want them to appear at the top or bottom of the page with captions and so forth.

You can also insert a bitmapped image (JPEG or PNG):



Pseudocode and URLs

To write pseudocode, use the “algorithmic” environment. You might want to enclose it in a “minipage” (an environment of defined text width less than the width of the page) so that the comments don’t stray too far from the code.

```
BSEARCH( $x$ ,  $A$ ,  $p$ ,  $r$ )
  if  $p = r$                                      ▷ base case
    if  $A[p] = x$ 
      return  $p$ 
    else
      return notFound
  else
     $\text{mid} \leftarrow \lceil (p + r)/2 \rceil$ 
    if  $A[\text{mid}] > x$ 
      return BSEARCH( $x$ ,  $A$ ,  $p$ ,  $\text{mid} - 1$ )
    else
      return BSEARCH( $x$ ,  $A$ ,  $\text{mid}$ ,  $r$ )
```

You can read more about the “algorithmicx” package, which lets you format pseudocode, at <https://en.wikibooks.org/wiki/LaTeX/Algorithms>. Did I mention that you can write clickable URLs in your documents? You can also write hyperlinks, just like a web page.