1   Introduction

To write text, just write text.

1.1   You can have subsections

1.1.1   You can have sub-subsections

Get a underline with \underline{}, **bold text** with \textbf{} and *italics with* \emph{}.

\\ gives you a new

line.

2   Lists

Bullet point list

- First item
- Second item
    - First sub-item
    - Second sub-item
- Third item

Numbered lists

1. First item
2. Second item
    (a) First sub-item
    (b) Second sub-item
3. Third item

3   Mathematics

$$textdoesn'tworkliketextinmathenvironment \tag{3.1}$$

but you can use \text{}

$$\pi \approx 3.14 \text{ this is a very crude approximation} \tag{3.2}$$

$$Ax = b \tag{3.3}$$

$$\frac{\sqrt{1 + \frac{df}{dx}}}{2} = 20.0 \text{ adding text} \tag{3.4}$$

$$a = b$$

Another math environment (doesn't print number by default)

$$\alpha = 2$$

You can also use equations in text like $x = 2$. Text continues afterwards. Delta in second order polynomials is given by $\Delta = \frac{-b \pm \sqrt{b^2 - 4ac}}{2}$.

You can also align equations

$$a = 2 \tag{3.5}$$
$$= 3 \tag{3.6}$$
$$= 4$$
$$= 17 \tag{3.7}$$
$$= c \tag{3.8}$$

Matrices are also easy to write

$$A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} = I \tag{3.9}$$

Subscript and superscript, use curly braces

$$x_{ijk} = 5 \times 10^{-17}$$

here I forgot curly braces

$$x_i jk = 5 \times 10^- 17$$

$$a(x) = \begin{cases} -\infty \text{ if } x > 0 \\ 1 \text{ otherwise} \end{cases}$$

4   Tables

Tabular environment within table environment

x	1	2	3	4	5
y	1	4	9	16	25

A weird table

Left aligned	center aligned	right aligned
another cell	$a = \frac{1}{2}$	
a	hello	b

5   Figures

Figure 1: This is a figure

6   Minipage

Divide the page   into two parts

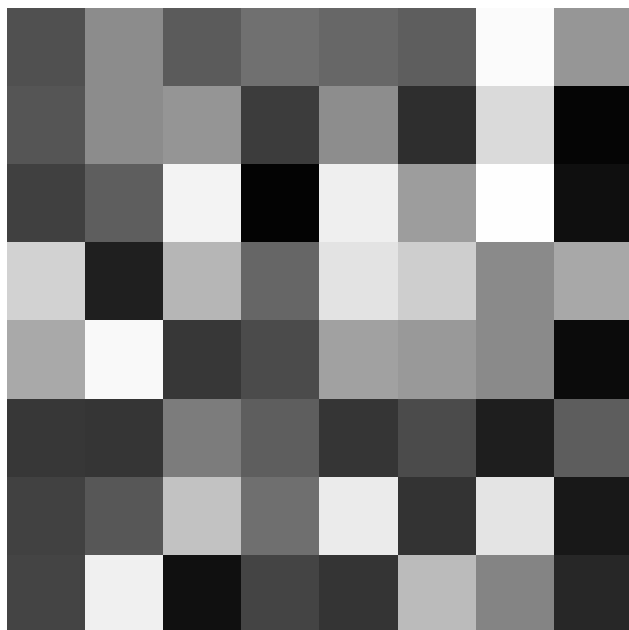or   three   parts

Advanced examples

Figure 2: The grayscale image example.

Figure 3: The color image example.

7 Referencing

Add \label{} to equations, figures, tables, sections.

You can then reference a section, like section 7, or Figure 3 or equation (7.1).

$$e = mc^2 \tag{7.1}$$

It'll give you click-able links if you're using the `hyperref` package.

8 Typesetting Code

Use either the `lstlisting` package

```
1  function it = fractal(c)
2    z = 0;
3    it = 0;
4    while abs(z) <= 2.0
5      z = z^2 + c;
6      it = it + 1;
```

```
 7     if it == 100
 8       it = 0;
 9       break;
10     end
11   end
12 end
```

or use the verbatim environment

```
function it = fractal(c)
  z = 0;
  it = 0;
  while abs(z) <= 2.0
    z = z^2 + c;
    it = it + 1;
    if it == 100
      it = 0;
      break;
    end
  end
end
```

The vebatim environment can also be used in line with `\verb||`. [1]

9   Citing

You can simply cite papers using `\cite{}`.[1]

<h1 align="center">References</h1>

1. Mandelbrot, B. How long is the coast of britain? statistical self-similarity and fractional dimension. *science* **156**, 636–638 (1967).

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[1]Inline `verb` works with a pair of the same symbol to bound whatever is inside.