In this note we have some simple Markdown examples and show their conversion to PDF via LaTeX.

Handling sections

Use H1 (#) for the title, and then H2 (##) for sections. H2 headers start at the `subsection` level, and are not numbered. H3 headers (###) and lower just get turned into `paragraph`s.

A subsection

Here's a subsection.

A subsubsection ... is now a `paragraph` environment.

Equations

Here's an inline equation: $E = mc^2$.

Here's a regular equation:

$$-\frac{\hbar^2}{2m}\nabla^2\psi(r,t) + V(r)\psi(r,t) = i\hbar\frac{\partial}{\partial t}\psi(r,t) \tag{1}$$

For multi-line equations, you can use the `align` environment (or `gather`, or `eqnarray`, etc...) like this:

$$a = b + c \tag{2}$$
$$x = y - z \tag{3}$$

Unfortunately the raw LaTeX doesn't render in most Markdown previewers, e.g. VSCode. However, for reasons that are mysterious to me, the VSCode Markdown previewer does allow for newlines via \\ in equation mode. So if you want to do multiline like that to start, and then switch to the `align` environment manually before compiling to LaTeX/pdf, go for it.

Note that you don't need to add a blank line before a full-line equation in the Markdown file, e.g. you can write

```
some text

$$
1+1=2
$$
```

instead of

```
some text

$$
1+1=2
$$
```

And here's a matrix:

$$A = \begin{pmatrix} 2 & -1 & 0 & 0 \\ -1 & 2 & -1 & 0 \\ 0 & -1 & 2 & -1 \\ 0 & 0 & -1 & 2 \end{pmatrix}, \quad b = \begin{pmatrix} 1 \\ 1 \\ 0 \\ 0 \end{pmatrix}. \tag{4}$$

Inline code

Here's some `inline code`.

Lists

Here's a simple list:

- x
- y
- z

Here's an enumerated list:

1. x
2. y
3. z

Here's an enumerated list with an equation:

1. x
2. y
3. an equation:

$$a + b \tag{5}$$

4. z

Tables

Here's a simple table. Something is a little off with the rendering, not sure why...

Syntax	Description
Header	Title
Paragraph	Text

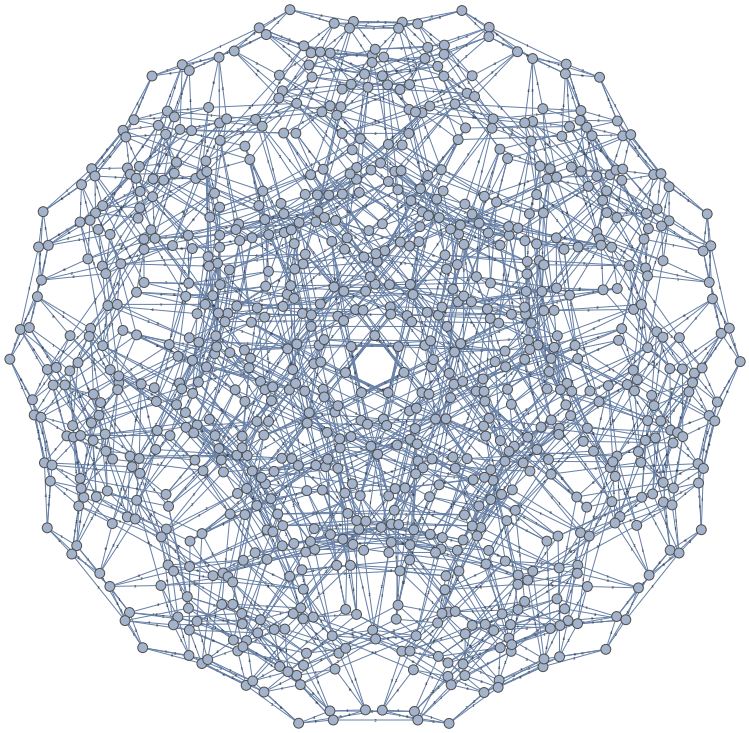

Figure 1: A caption

Figures

Here's a figure with a caption: