

Day #4: Miscellany, math, and then some more

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1 x

As you write, you might need to *emphasize* certain words or phrases. We can also explicitly *italicize*, **bold**, underline.

There are also commands within mathematical statements, for example, **x** which is one way of communicating vectors. Sometimes we talk about sets of numbers, for example, \mathbb{R} or \mathbb{Z} . Other times we need fancy letters in calligraphy, \mathcal{A} .

Occasionally, we need to change the size of certain words or parts of text. We might want to make something Huge. Or Large, or large. Maybe small, or footnote size, or script size, tiny. I believe we have LARGE and normal.

We need to “escape” certain symbols that are otherwise treated like commands. For example the dollar sign is \$. To print a slash we can use / or \, but a related command requires a math mode \.

For a vector we need that little line on top, \bar{v} or \vec{v} . For actuarial science, you might want to explore `\usepackage{actuarialsymbol}`. To highlight this, we used commands like `\Large` above to adjust the size of fonts. For longer statements we can use

```
%% preamble
\title{Day \#4: Miscellany, math, and then some more}
\author{Sean Lavery}
\date{Wednesday, August 30, 2023}

\usepackage{geometry}
\usepackage{amssymb}
\usepackage{amsmath}
\usepackage{xcolor}
```

Consider the polynomial defined by $p_n(x)$, which we expand below,

$$p_n(x) = \sum_{k=0}^n a_k x^k \tag{1}$$

$$= a_0 x^0 + a_1 x^1 + \cdots + a_{n-1} x^{n-1} + a_n x^n$$
$$p_n(x) = a_0 + a_1 x + \cdots + a_{n-1} x^{n-1} + a_n x^n \tag{2}$$

Above in Eq. (??) we define $p_n(x)$ as a polynomial which we then expand in Eq. (??).

This was fun but let's add some colors! We can actually mix colors too, purplish. shading.