

Responses to the Mariners 2025 Analytics Intern Problem Set

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Problem 1: Predicting Air Out Probability of Batted Balls

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Enumerating

Create bulleted lists by using the `itemize` command (see source code):

- Item 1
- Item 2
- Item 3

Create numbered lists by using the `enumerate` command (see source code):

1. Item 1
2. Item 2
 - (a) Sub-item 2a
 - (b) Sub-item 2b
3. Item 3

Formatting Mathematics

Entire books have been written about typesetting mathematics in \LaTeX , so this guide will barely scratch the surface of what's possible. But it contains enough information to get you started, with pointers to resources where you can learn more. First, the basics: all mathematical content needs to be written in “math-mode” — this is done by enclosing the content within $\$$ symbols. For example, the code to produce $6x + 2 = 8$ is `$6x + 2 = 8$` . Note that this is only good for inline math; if you would like some stand-alone math on a separate line, use *two* $\$$ symbols. For example, `$$6x + 2 = 8$$` produces:

$$6x + 2 = 8$$

Here are various other useful mathematical symbols and notations — see the source code to see how to produce them.

- Sub- and super-scripts: $e^x, a_n, e^{2x+1}, a_{n+2}, f_{n+1}^i$
- Common functions: $\log x, \sin x$
- Greek symbols: $\epsilon, \phi, \pi, \Pi, \Phi$
- Summations: $\sum_{i=0}^{100} i^2$
- Products: $\prod_{i=0}^{\infty} 2^{-i}$

- Fractions: $3/2$

$$\frac{x+5}{2 \cdot \pi}$$

Other useful resources:

- Find the \LaTeX command you're looking for by drawing what you want to produce¹: <http://detexify.kirelabs.org/classify.html>
- Ask others: <http://tex.stackexchange.com/>
- Every \LaTeX symbol ever: <https://goo.gl/Gie24Y>

¹Thanks to Dr. Kate Thompson for pointing me to this resource. Also, this is how you create a footnote. But don't overuse them — prefer citations and use the acknowledgements section when possible. I usually only use footnotes when I want to include a pointer to a web site.

**Problem 2: Report on Player 15411's Outfield
Defense**

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Problem 3: A Recent Mistake

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