Matrices

We can create matrices in LaTeX using our knowledge of brackets and multiline formulas.

1. If you want your matrix to be enclosed by brackets, use the \left command followed by your bracket type to enter the opening bracket.
2. Enter the command \begin{array}{*alignment*}. Under *alignment*, we will enter how we want each column of our matrix to be aligned using the commands l for left, c for centre, and r for right. For example, if we have 3 columns, and want the first column to be aligned left, second column to be aligned centre, and third column to be aligned right, the command would be \begin{array}{lcr}. Hit enter.
3. Enter each row of your matrix on a separate line. On each line:
    - Place a & symbol between each entry in the matrix.
    - Place \\ at the end of each line.
4. Enter the command \end{array}.
5. If you want your matrix to be enclosed by brackets, use the \right command followed by your bracket type to enter the closing bracket.

$$\left[\begin{array}{ccc} \lambda - 1 & 0 & 0 \\ 0 & \lambda - 1 & 0 \\ 0 & 0 & \lambda - 1 \end{array}\right]$$

```
\left[ \begin{array}{ccc}
\lambda -1 & 0 & 0 \\
0 & \lambda -1 & 0 \\
0 & 0 & \lambda -1
\end{array} \right]
```

To only include a large left bracket, use the command \right**.** to void the right bracket (or vice versa).

$$|a| = \begin{cases} a & if\, a \geq 0 \\ -a & if\, a < 0 \end{cases}$$

```
|a|= \left\{ \begin{array}{cl}
a & if a \geq 0 \\
-a & if a < 0
\end{array} \right.
```