

# Sample TeX File

Your name here

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# 1 This is a section

Here is a list:

- Item 1
- Item 2

## 1.1 Here is a subsection

*Proof.*

- (a) Numbered item 1
- (b) Numbered item 2

□

Use \mathrm to make normal text in a math block, such as the d in the integral below:

$$\int_0^{\frac{\pi}{2}} \sin(x) \, dx = -\cos(x) \Big|_0^{\frac{\pi}{2}}$$

### 1.1.1 Here is a subsubsection

You can align equations as follows:

$$x = y \tag{1}$$

$$x^2 = y^2 \tag{2}$$

You can also remove the equation numbers by adding an asterisk:

$$\begin{aligned} x &= \frac{1}{2} \\ x^2 &= \left(\frac{1}{2}\right)^2 \end{aligned}$$

**Lemma 1.** *This is a lemma*

$$\sum_{n=1}^{\infty}$$

## 2 Sample table

| Name              | Meaning                               | Symbol                    | LaTeX                  |
|-------------------|---------------------------------------|---------------------------|------------------------|
| Empty set         | The set containing zero elements      | $\emptyset$ OR $\{\}$     | <code>\emptyset</code> |
| In                | a is an element of b                  | $a \in b$                 | <code>\in</code>       |
| Not in            | a is not an element of b              | $a \notin b$              |                        |
| Subset            | All elements of a are in b            | $a \subseteq b$           | <code>\subseteq</code> |
| Proper subset     | A is a subset of b but not equal to b | $a \subset b$             | <code>\subset</code>   |
| Universal set     | Set of all possible elements          | $U$                       |                        |
| Union             | Elements in either A or B or both     | $A \cup B$                |                        |
| Intersection      | Elements in both A and B              | $A \cap B$                |                        |
| Set difference    | Elements in A that are not in B       | $A - B$                   |                        |
| Complement (sets) | Set difference $U - A$                | $\bar{A}$ or $A^c$        |                        |
| Power set         | Set of all possible subsets of A      | $P(A)$                    |                        |
| Cardinality       | Number of distinct elements in A      | $ A $ or $\text{card}(A)$ |                        |