

# 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:

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

### 1.1.1 Here is a subsubsection

You can align equations as follows:

$$\begin{aligned} x &= y & (1) \\ x^2 &= y^2 & (2) \end{aligned}$$

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 $\text{card}(A)$	