

Homework 1

Your Name

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Section 2.1

Let $m : \mathcal{A} \rightarrow [0, \infty)$ be a set function where \mathcal{A} is a σ -algebra. Assume m is countably additive over countable disjoint collections of sets in \mathcal{A} .

Problem 1

Given sets A , B , and C , if $A \subset B$ and $B \subset C$, then $A \subset C$.

Proof. Other symbols you can use for set notation are

- $A \supset B \supseteq C \subset D \subseteq E$. Also \emptyset vs \emptyset
- \cup and $\cup_{k=1}^{\infty} E_k$
- \cap and $\cap_{x \in \mathbb{N}} \{ \frac{1}{\sqrt{x}} \}$
- \bigcup and $\bigcap_{k=0}^n$ and \bigcap
- most Greek letters $\sigma \pi \theta \lambda_i e^{i\pi}$
- $\int_0^2 \ln(2) x^2 \sin(x) dx$
- $\leq < \geq > \neq$

If you want centered math on its own line, you can use a slash and square bracket.

$$\left\{ \sum_{k=1}^{\infty} l(I_k) : A \subseteq \bigcup_{k=1}^{\infty} \{I_k\} \right\}$$

The left and right commands make the brackets get as big as we need them to be. □

Problem 2

Given...

Proof. Let $\epsilon > 0$. If you have a shorter statement that you still want centered, use two $\$$ on either side.

\exists some $\delta > 0 \mid \dots$

□

Problem 3

Proof.

□

Section 2.2

Problem 6

Blah

Problem 7

Blah

Problem 10

Blah