



MITx: 6.041x Introduction to Probability - The Science of Uncertainty



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Overview

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Probability
models and
axioms

**Lec. 1: Probability
models and
axioms**

Exercises 1 due Feb
10, 2016 at 23:59 UTC

**Mathematical
background: Sets;
sequences, limits,
and series;
(un)countable sets.**

Solved problems

Problem Set 1

Problem Set 1 due Feb
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EXERCISE: MORE PROPERTIES (2/2 points)

Let A , B , and C be subsets of the sample space, not necessarily disjoint. For each one of the following statements, determine whether it is true or false. *Note: "False" means "not guaranteed to be true."*

a) $\mathbf{P}((A \cap B) \cup (C \cap A^c)) \leq \mathbf{P}(A \cup B \cup C)$

True ▼



Answer: True

b) $\mathbf{P}(A \cup B \cup C) = \mathbf{P}(A \cap C^c) + \mathbf{P}(C) + \mathbf{P}(B \cap A^c \cap C^c)$

True ▼



Answer: True

Answer:

a) True. This is because the set $(A \cap B) \cup (C \cap A^c)$ is a subset of $A \cup B \cup C$.

b) True. This is the same property shown in the last segment, with the three sets appearing in a different order.

You have used 1 of 1 submissions

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