

Homework 1

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STAT GR5202: Probability
Columbia University
September 29, 2020

Question 1 We will let H denote a heads and T denote a tails.

(a) The sample space is given by $\mathcal{S} = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$.

(b) We have

1. $A =$ at least two heads $= \{HHH, HHT, HTH, THH\}$.
2. $B =$ the first two tosses are heads $= \{HHH, HHT\}$.
3. $C =$ the last toss is a tail $= \{HHT, HTT, THT, TTT\}$.

(c) We have

1. $A^c = \{HTT, THT, TTH, TTT\}$.
2. $A \cap B = \{HHH, HHT\} = B$ (since $B \subset A$).
3. $A \cup C = \{HHH, HHT, HTH, HTT, THH, THT, TTT\}$.

Question 2