

Assignment 5

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Question: Consider the experiment in which a coin is tossed repeatedly until a head comes up. Describe the sample space.

Solution: Let's denote the outcome of the experiment by a random variable Y such that it maps to the following set of integer $Y \in \{0, 1, 2, \dots\}$, where $Y = i$ denotes that numbers of tails that occurred before a heads came up is i such that $i \in \{0, 1, 2, \dots\}$.

By Y , The sample space S of the experiment can be shown as:

$$S = \{H, TH, TTH, TTTH, TTTTH \dots\} \quad (1)$$