Random Variables

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Preliminaries and Objectives

Preliminaries

- Probability

Objectives

- Define 'random variable'

Example 1

Roll one standard (six-sided) die. Let X denote the number on the die.

k	$P(X = k)$
1	$\frac{1}{6}$
2	$\frac{1}{6}$
3	$\frac{1}{6}$
4	$\frac{1}{6}$
5	$\frac{1}{6}$
6	$\frac{1}{6}$

Example 2

Flip two coins. Let *X* denote the number of heads.

k	$P(X = k)$	
0	$\frac{1}{4}$	TT
1	$\frac{2}{4}$	HT, TH
2	$\frac{1}{4}$	HH

Random Variables

A **random variable** is a set of numbers associated with outcomes of a random experiment. A probability distribution assigns probabilities to the values in the set.