Probability Concepts

- **Experiment / Random Experiment:**
  - A single coin toss is an example of a Bernoulli experiment.
  - Tossing n coins is an example of a Binomial experiment.
- **Outcome:** The result of a single trial of an experiment.
- **Sample Space:** The set of all possible outcomes of an experiment, denoted by S.
- **Frequency of Events:** The number of occurrences of an event in a given number of trials.
- **Probability of an Event:** The likelihood of an event occurring, denoted by $P(E)$.

Examples

Example 1: Bernoulli Experiment
Consider a fair coin. The possible outcomes are {Heads, Tails}.
Example 2: Binomial Experiment
Tossing a fair coin three times. The sample space is {HHH, HHT, HTH, THH, HTT, THT, TTH, TTT}.
Example 3: Probability Calculation
If $P(\text{Heads}) = 0.5$, then the probability of getting two Heads in two tosses is $P(\text{HH}) = 0.5 \times 0.5 = 0.25$.

Questions

A 12-faced die is like having 2 6-faced dice?