

A *random event* is defined as any activity or phenomenon that meets the following conditions:

- (i) There is one distinct outcome for each trial of the experiment.
- (ii) The outcome of the experiment is uncertain.
- (iii) The set of all distinct outcomes of the experiment can be specified and is called the *sample space*.

An *outcome* is any member of the sample space.

An *event* is a set of outcomes.

If an experiment is performed n times, under identical conditions, and the event A happens k times, the *relative frequency* of A is

$$\text{rf}(A) = \frac{k}{n}.$$

If the relative frequency converges as n increases, the value to which it converges is said to be the *experimental probability* of A .

In each of the experiments below, execute 20 trials of the experiment, and for each trial record whether or not the given event occurred, and compute and record the relative frequency. Find the frequency and relative frequency of the event after 20 trials.

The estimated probability is the relative frequency after 20 trials.

Experiment 1. Estimate the probability of flipping a coin and getting heads.

Experiment 2. Estimate the probability of flipping a coin 5 times and getting at least 3 heads.

Experiment 3. Estimate the probability of rolling 3 dice and getting a sum of which is a multiple of 5.

Experiment 4. Estimate the probability of drawing 5 cards from a shuffled deck and getting at least 3 cards of the same suit.

In the appropriate cell, record whether or not the given event occurred and the relative frequency.

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	Experiment 1	Experiment 2	Experiment 3	Experiment 4
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17				
18				
19				
20				
+-----+-----+-----+-----+				
Total				
+-----+-----+-----+-----+				
Rel Freq				
+-----+-----+-----+-----+				