

Activity 34

OBJECTIVE

To find experimental probability of each outcome of a die when it is thrown a large number of times.

MATERIAL REQUIRED

Die, note book, pen.

METHOD OF CONSTRUCTION

1. Divide the whole class in ten groups say $G_1, G_2, G_3, \dots, G_{10}$ of a suitable size.
2. Allow each group to throw a die 100 times and ask them to note down the observations, i.e., the number of times the outcomes 1, 2, 3, 4, 5 or 6 come up.
3. Count the number of times 1 has appeared in all the groups. Denote it by a . Similarly, count the number of times each of 2, 3, 4, 5 and 6 has appeared. Denote them by b, c, d, e and f respectively.
4. Find the probability of each outcome 'E' using the formula :

$$P(E) = \frac{\text{Number of times an outcome occurred}}{\text{Total number of trials}}$$

DEMONSTRATION

1. There are 10 groups and each group throws a die 100 times. So, the total number of trials is 1000.
2. Total number of times 1 has appeared is a

Therefore, experimental probability of 1 is $P(1) = \frac{a}{1000}$

Similarly, experimental probability of 2 is $P(2) = \frac{b}{1000}$, of 3 is $P(3) = \frac{c}{1000}$,

of 4 is $P(4) = \frac{d}{1000}$,

of 5 is $P(5) = \frac{e}{1000}$, of 6 is $P(6) = \frac{f}{1000}$

OBSERVATION

Fill in the results of your experiment in the following table:

Outcome\ Group	Number of times a number comes up on a die						Total
	1	2	3	4	5	6	
G ₁	----	----	----	----	----	----	100
G ₂	----	----	----	----	----	----	100
G ₃	----	----	----	----	----	----	100
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G ₁₀	----	----	----	----	----	----	100
Total	a = ----	b = ----	c = ----	d = ----	e = ----	f = ----	1000

Therefore,

$$P(1) = \frac{\dots\dots\dots}{1000}, P(2) = \frac{\dots\dots\dots}{1000}, P(3) = \frac{\dots\dots\dots}{1000}, P(4) = \frac{\dots\dots\dots}{1000},$$

$$P(5) = \frac{\dots\dots\dots}{1000}, P(6) = \frac{\dots\dots\dots}{1000}.$$

APPLICATION

Concept of probability is used by several statistical institutions to estimate/ predict next action based on available data.