



3055 BA SANGAM COLLEGE
PH: 6674003/9264117 E-mail: basangam@connect.com.fj



WORKSHEET 25

SCHOOL: BA SANGAM COLLEGE

YEAR: 10

SUBJECT: MATHEMATICS

NAME OF STUDENT: _____

STRAND	6- PROBABILITY
SUB-STRAND	6.4 Probability Experiment
LEARNING OUTCOME	To learn and calculate probability of any event using real life examples

Basic Concepts Of Probability

i. We can use probability to make decisions.

ii. **We can use probability to make predictions.** For example: The probability of tossing a single coin and getting a tail is 0.5. If we toss the coin 30 times how many times will we get tails?

$$\text{Probability of tails} \times \text{Number of tosses} = \text{Number of tails } 0.5 \times 30 = 15 \text{ tails}$$

iii. We can estimate probability from observations.

iv. We can find the probability of events by calculating the relative frequency.

Relative Frequency is the number of successful trials divided by the total number of trials.

$$\text{Relative frequency} = \text{no. of successful trials} / \text{Total count}$$

The above equation expresses relative frequency as a proportion. It is also often expressed as a percentage. Thus, a relative frequency of 0.40 is equivalent to a percentage of 40%.

EXAMPLE -Tossing a coin.



Raju tosses a coin 20 times and gets a total of 14 heads. The relative frequency of the head is:

$$\text{Relative frequency} = \text{no. of successful trials} / \text{Total count} = 14 / 20 = 0.7$$

Example 2- Rolling a Die



Sera did an experiment in which she threw a single die 50 times. She found that the relative frequency of a “five” was 0.2. How many “fives” did she get:

Relative frequency = no. of successful trials / Total count $0.2 = x / 50$ $x = 10$ “fives”

b. If Sera throw the same die 150 times, how many “fives” should she expect?

Relative frequency = no. of successful trials / Total count $0.2 = x / 150$ $x = 30$ “fives”

- **Expected Value** – is the estimate number of times an event may occur.

Estimate Value = number of outcomes X probability of that event occurring

$$E = n \times p \quad \text{where- } n = \text{total number of trials} \\ P = \text{probability of an event to occur}$$

EXAMPLE.

How many heads are expected if a coin is tossed 200 times?

$$E = n \times p. \quad n = 200, p = \text{probability of head is } 0.5 \\ 200 \times 0.5 \\ = \underline{100}$$

EXERCISE

1.a) If you toss a fair coin, the probability of getting “heads” is 0.5

i. Write this probability as a percentage.

(1mark)

ii. If John tosses the coin 28 times how many times would you **expect** to get heads?

(1mark)

iii. Will you always get tails this many times when anyone does this experiment? Explain.

(1mark)

2. When a child is born the probability that it will be a girl is equal to that it will be a boy: both probabilities are 0.5

i. If 300 babies were born in CWMH how many would you expect to be girls?

(1mark)

ii. How many would you **expect** to be boys?

(1mark)

3. The probability of getting a surprise Accounting test in Year 10 is 0.25. If there are 180 school days in the year, how many surprise tests can students expect?

(1mark)

Is it certain that students will have this many surprise tests?

(1mark)