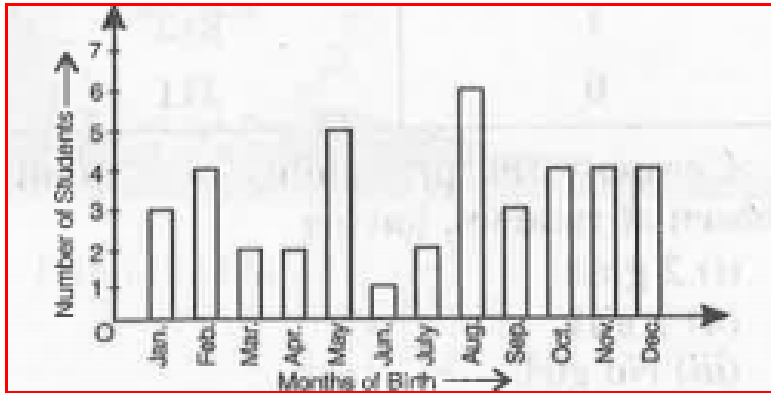# MATHS

BOOKS - MBD

PROBABILITY

Example

1. In a particular section of Class IX, 40 students were asked about the months of their birth and the following graph was

prepared for the data so obtained :

Find the probability that a student of the class was born in August.

2. Three coins are tossed simultaneously 200 times with the following frequencies of different outcomes :

Outcome	Frequency
3 heads	23
2 heads	72
1 head	77
No head	28

If the three coins are simultaneously tossed again, compute the probability of 2 heads coming up.

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3. An Organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehiclesin a family. The information

gathered is listed in the table below :

Monthly income in ?	Vehicles per family			
	0	1	2	Above 2
Less than 7000	10	160	25	0
7000-10000	0	305	27	2
10000-13000	1	535	29	1
13000-16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is : earning $ 10000-13000 per month and owning exactly 2 vehicles.

4. An Organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the

number of vehiclesin a family. The information gathered is listed in the table below :

Monthly income	Vehicles per family			
in ?	0	1	2	Above 2
Less than 7000	10	160	25	0
7000-10000	0	305	27	2
10000-13000	1	535	29	1
13000-16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is : earning $ 16000 or more per month and owning exactly 1 vehicle.

5. An Organisation selected 2400 families at random and surveyed them to determine a

relationship between income level and the number of vehiclesin a family. The information gathered is listed in the table below :

Monthly income	Vehicles per family			
in ?	0	1	2	Above 2
Less than 7000	10	160	25	0
7000-10000	0	305	27	2
10000-13000	1	535	29	1
13000-16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is : earning less than $ 7000 per month and does not own any vehicle.

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6. An Organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehiclesin a family. The information gathered is listed in the table below :

Monthly income	Vehicles per family			
in ?	0	1	2	Above 2
Less than 7000	10	160	25	0
7000-10000	0	305	27	2
10000-13000	1	535	29	1
13000-16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is : earning $ 10000-13000 per month and owning exactly 2 vehicles.

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7. An Organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehiclesin a family. The information gathered is listed in the table below :

Monthly income	Vehicles per family			
in ?	0	1	2	Above 2
Less than 7000	10	160	25	0
7000-10000	0	305	27	2
10000-13000	1	535	29	1
13000-16000	2	469	59	25
16000 or more	1	579	82	88

Suppose a family is chosen. Find the probability that the family chosen is : not more than 1 vehicle.

8. A teacher analyses the performance of two sections of students in a mathematics test of 100 marks given in the following table :

Marks	Number of students
0–20	7
20–30	10
30–40	10
40–50	20
50–60	20
60–70	15
70 and above	8
Total	90

: Find the probability that a student obtained less than 20% in the mathematics test.

9. A teacher analyses the performance of two sections of students in a mathematics test of 100 marks given in the following table :

Marks	Number of students
0–20	7
20–30	10
30–40	10
40–50	20
50–60	20
60–70	15
70 and above	8
Total	90

: Find the probability that a student obtained 60 or above

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10. To know the opinion of the students about the subject statistics, a survey of 200 students was conducted. The data is recorded in the following table :

Opinion	Number of students
likes	135
dislikes	65

Find the probability that a student chosen at random :

likes statistics.

1. A coin is tossed 1000 times with the following frequencies of head and tail head : 455, tail : 545 compute the experimental probability for each type of outcome, i.e. head and tail.

2. Two coins are tossed 500 times and we get

Two heads : 105 One head : 275 No head : 120

Find the probability of getting no head, one head or two heads.

3. From a telephone directory, 200 telephone numbers are chosen and frequency distribution of their right most digits (For example in the number 28563, the rightmost digit is 3) is given as follows :

Digit	Frequency
0	22
1	26
2	22
3	22
4	20
5	10
6	14
7	28
8	16
9	20

A next number is selected. What will be the probability that the rightmost digit in the number is 6.

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4. A large tyre manufacturing company kept a record of the distance at which a particular kind of two wheeler tyre needed to be replaced. The table shows the results from 1000 samples.

Distance (km.)	less than 400	400 to 900	900 to 1400	more than 1400
Frequency	210	325	385	80

: If you buy a tyre of this company, what is the probability that : it will need to be replaced before it has covered 400 km. ?

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5. A large tyre manufacturing company kept a record of the distance at which a particular kind of two wheeler tyre needed to be replaced. The table shows the results from 1000 samples.

Distance (km.)	less than 400	400 to 900	900 to 1400	more than 1400
Frequency	210	325	385	80

: If you buy a tyre of this company, what is the probability that : it will last more than 900 km ?

6. A large tyre manufacturing company kept a record of the distance at which a particular kind of two wheeler tyre needed to be replaced. The table shows the results from 1000 samples.

Distance (km.)	less than 400	400 to 900	900 to 1400	more than 1400
Frequency	210	325	385	80

: If you buy a tyre of this company, what is the probability that : it will need to be replaced after it has covered somewhere between 400 and 1400 km. ?

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7. The percentage of marks obtained by a student in the monthly unit tests are given below :
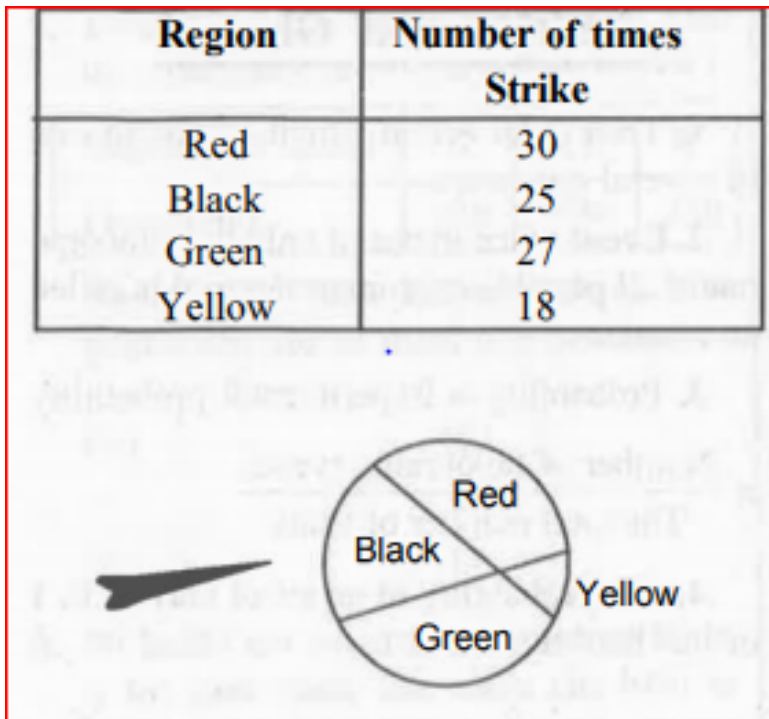
Unit test	Percentage of Marks obtained
I	69
II	71
III	73
IV	68
V	74

Based on this data, find the probability that the student gets more than 70% marks in the next unit test.

8. In 100 attempts different coloured regions were striked in given number of times.

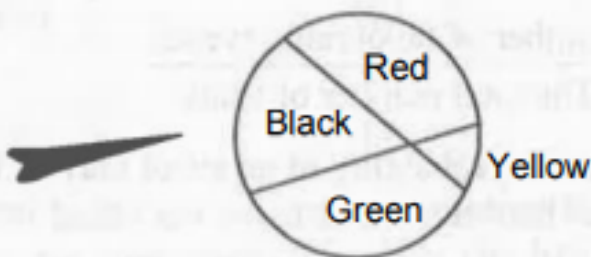| Region	Number of times Strike
Red	30
Black	25
Green	27
Yellow	18

: Find the probability that next attempt will srike Green region.

9. In 100 attempts different coloured regions were striked in given number of times.

Region	Number of times Strike
Red	30
Black	25
Green	27
Yellow	18

: Find the probability that next attempt will srike Red region.

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