MATHS

BOOKS - VIDHYASANGAM - RAO'S ACADEMY MATHS (KANNADA ENGLISH)

PROBABILITY

Exercise 15 1

1. In a cricket math , a batswoman hits a boundary 6 times out of 30 balls she plays . Find the probability that the did not hit a boundary.

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2. 1500 families with 2 children were selected randomly,

and the following data were recorded :

Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family , chosen at random,

having

2 girls

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3. 1500 families with 2 children were selected randomly,

and the following data were recorded :

Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family , chosen at random,

having

1 girl

4. 1500 families with 2 children were selected randomly,

and the following data were recorded :

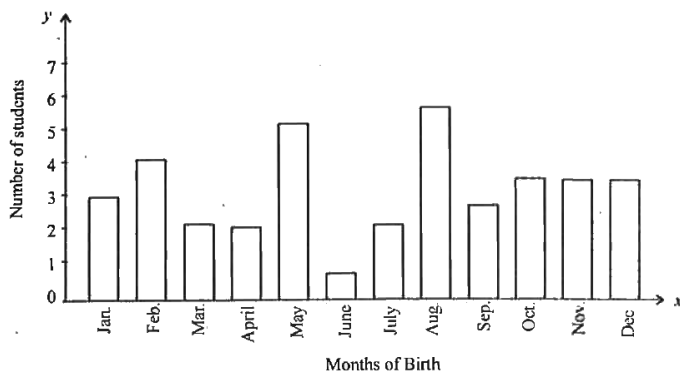| Number of girls in a family	2	1	0
Number of families	475	814	211

Compute the probability of a family , chosen at random,

having

No girl

5. 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 .

Months of Birth

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

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

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

7. An organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in 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 Rs 10000 - 13000 per month and owning exactly

2 vehicles.

8. An organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in 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 Rs 16000 or more per month and owning exactly 1 vehicle.

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

Monthly income (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 Rs 7000 per month and does not own any vehicle.

10. An organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in 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 Rs 13000-16000 per month and owning more than 2 vehicles.

11. An organisation selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in 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

owning not more than 1 vehicle.

12. A teacher analyses the performance of two sections

of students in a mathematics test of 100 marks given in

the following table.

Marks	No. of students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 and above	8

Find the probability that a student obtained less than

20 in the mathematics test.

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

Marks	No. of students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 and above	8

Find the probability that a student obtained marks 60 or above.

14. 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
like	135
dislike	65

Find the probability that a student chosen at random likes statistics

15. 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
like	135
dislike	65

Find the probability that a student chosen at random does not like it.

16. Distance (in km) of 40 engineers from their place of residence to their place of work were found as follows.

5	3	10	20	25	11	13
7	12	31	19	10	12	17
18	11	32	17	16	2	7
9	7	8	3	5	12	15
18	3	12	14	2	9	6
15	15	7	6	12		

What is the empirical probability that an engineer lives.

less than 7 km from her place of work ?

17. Distance (in km) of 40 engineers from their place of residence to their place of work were found as follows.

5	3	10	20	25	11	13
7	12	31	19	10	12	17
18	11	32	17	16	2	7
9	7	8	3	5	12	15
18	3	12	14	2	9	6
15	15	7	6	12		

What is the empirical probability that an engineer lives. more than or equal to 7 km from her place of work ?

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18. Distance (in km) of 40 engineers from their place of residence to their place of work were found as follows.

5	3	10	20	25	11	13
7	12	31	19	10	12	17
18	11	32	17	16	2	7
9	7	8	3	5	12	15
18	3	12	14	2	9	6
15	15	7	6	12		

What is the empirical probability that an engineer lives.

within $\dfrac{1}{2}$ km from her place of work ?

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19. Activity : Note the frequency of two - wheelers , three

- wheelers and four - wheelers going past during a time

interval in front of your school gate . Find the

probability that any one vehicle out of the total vehicles

you have observed is a two - wheeler.

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20. Activity : Ask all the students in your class to write a 3 - digit number. Choose any student from the room at random. What is the probability that the number written by her/him is divisible by 3 ? Remember that a number is divisible by 3 , if the sum of its digits is divisible by 3.

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21. Eleven bags of wheat flour, each marked 5 kg actually contained the following weights of flour (in kg) :

  4.97 5.05 5.08 5.03 5.00 5.06 5.08 4.98 5.04 5.07 5.00

Find the probability that any of these bags chosen at random contains more than 5 kg of flour.

22. In , you were asked to prepare a frequency distribution table regarding the blood groups of 30 students of a class. Use this table to determine the probability that a student of this class, selected at random, has blood group AB.

23. In , you were asked to prepare a frequency distribution table regarding the concentration of sulphur dioxide in the air in parts per million of a certain city for 30 day . Using this table , find the

probability of the concentration of sulphur dioxide in the interval $0.12 - 0.16$ on any of these days .