



MATHS

BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

PROBABILITY

Exercise 15 1

1. In a cricket match, a batswoman hits a boundary 6 times out of 30 balls she plays. Find the probability that she 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 |

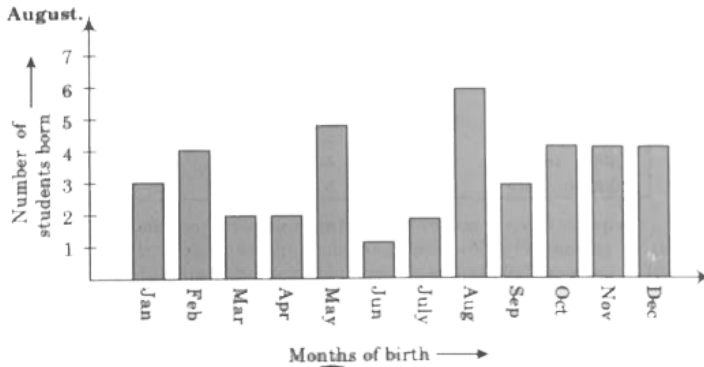
Compute the probability of a family , chosen at random, having
No girl



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3. In a particular section of class IX, 40 students were asked about thhe months of their birth the following graph was prepared for the data so obtained . Find the probability that a student of the class was born in

August.



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4. 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.



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5. An organization selected 2400 families at random and surveyed them to determine a relationship between 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 :

(i) earning Rs 10000-13000 per month and owing exactly 2 vehicles.

(ii) earning Rs 16000 or more per month and owning exactly 2 vehicle.

(iii) earning less than Rs 7000 per month and does not own any vehicle.

(iv) earning Rs 13000-16000 per month and owning more than 2 vehicles.

(v) owning not more than 1 vehicle.

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

6.

(i) Find the probability that a student obtained less than

20% in the mathematics test.

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



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7. 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.



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8. 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 ?

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9. 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.



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10. A study was conducted to find out the concentration of sulphur dioxide in the air in parts per million (ppm) of a certain city. The data obtained for 30 days is as follows :

| | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|
| 0.03 | 0.08 | 0.08 | 0.09 | 0.04 | 0.17 | 0.16 | 0.05 | 0.02 | 0.06 |
| 0.18 | 0.20 | 0.11 | 0.08 | 0.12 | 0.13 | 0.22 | 0.07 | 0.08 | 0.01 |
| 0.10 | 0.06 | 0.09 | 0.18 | 0.11 | 0.07 | 0.05 | 0.07 | 0.01 | 0.04 |

You were asked to prepare a frequency distribution table, regarding the concentration of sulphur dioxide in the air in parts per million (ppm) of a certain city for 30 days . Using this table, find the probability of the

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



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11. The blood groups of 30 students of class VIII are recorded as follows

| | | | | |
|----|-----|-----|----|-----|
| A, | B, | O, | O, | AB, |
| O, | A, | O, | B, | A, |
| O, | B, | A, | O, | O, |
| A, | AB, | O, | A, | A, |
| O, | O, | AB, | B, | A, |
| O, | B, | A, | B, | O |

represent this data in the form of frequency distribution table. Find out which is the most common and which is the rarest blood group among these students.



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