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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
(i) likes statistics, (ii) does not like it.

Solution:

Total number of students = 135+65 = 200

(i) Number of students who like statistics = 135

, the probability that a student likes statistics = 135/200 = 27/40

(ii) Number of students who do not like statistics = 65

∴, the probability that a student does not like statistics = 65/200 = 13/40

8. Refer to Q.2, Exercise 14.2. What is the empirical probability that an engineer lives:

(i) less than 7 km from her place of work?

(ii) more than or equal to 7 km from her place of work?

(iii) Within ½ km from her place of work?

Solution:

The distance (in km) of 40 engineers from their 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 3 2

17 16 2 7 9 7 8 3 5 12 15 18 3 12 14 2 9 6

15 15 7 6 12

Total numbers of engineers = 40

(i) Number of engineers living less than 7 km from their place of work = 9

,the probability that an engineer lives less than 7 km from her place of work = 9/40

(ii) Number of engineers living more than or equal to 7 km from their place of work = 40-9 = 31

,probability that an engineer lives more than or equal to 7 km from her place of work = 31/40

(iii) Number of engineers living within ½ km from their place of work = 0

∴, the probability that an engineer lives within ½ km from her place of work = 0/40 = 0

9. 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.

Solution:

The question is an activity to be performed by the students.

Hence, perform the activity by yourself and note down your inference.

10. 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.

Solution:

The question is an activity to be performed by the students.

Hence, perform the activity by yourself and note down your inference.

11. 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.

Solution:

Total number of bags present = 11

Number of bags containing more than 5 kg of flour = 7

∴, the probability that any of the bags chosen at random contains more than 5 kg of flour = 7/11

12. In Q.5, Exercise 14.2, 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 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.

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

Solution:

Total number of days in which the data was recorded = 30 days

Numbers of days in which sulphur dioxide was present in between the interval 0.12-0.16 = 2

∴, the probability of the concentration of sulphur dioxide in the interval 0.12-0.16 on any of these days = 2/30 = 1/15