NCERT Solutions for Class 8 Maths Chapter 5 - Data Handling

Chapter 5 - Data Handling Exercise Ex. 5.1

Solution 1

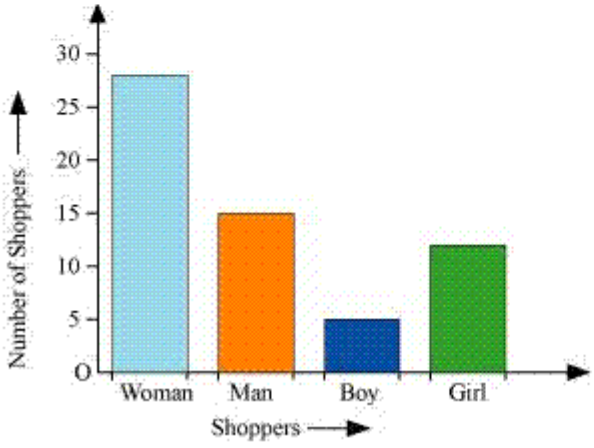
In case of the data given in alternative (b) and (d), we will use histogram as we can divide the given data in class intervals. In case of alternatives (a) and (c), we do not know about the number of letters of different areas and the number of cassettes produced by the given companies. We do not have any approximate idea about it. Therefore, we cannot define class intervals for this data and thus, we will not use a histogram.

Solution 2

By observing the data given above, we can make a frequency distribution table as follows.

Shopper	Tally marks	Number
W	𝍸𝍸𝍸𝍸	28
M	𝍸𝍸	15
B	𝍸	5
G	𝍸𝍸	12

The bar graph of this data can be drawn as follows.



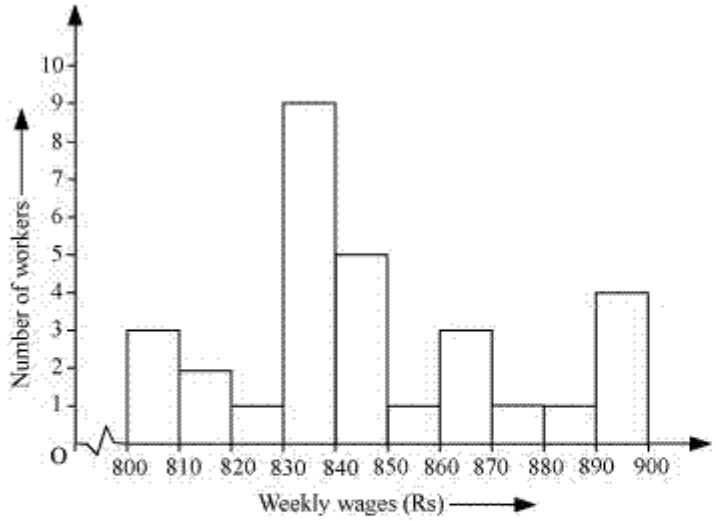
Solution 3

A frequency distribution table by using tally marks for the above data is as follows.

Interval	Tally marks	Frequency
800 – 810	|||	3
810 – 820	||	2
820 – 830	|	1
830 – 840	𝍸||||	9
840 – 850	𝍸	5
850 – 860	|	1
860 – 870	|||	3
870 – 880	|	1
880 – 890	|	1
890 – 900	||||	4

Solution 4

A histogram for the above frequency distribution table is as follows.



(i) 830 − 840 is the group which has the maximum number of workers.

(ii) The workers who earn more than Rs 850 are the number of workers who fall in the group of 850 − 860 or 860 − 870 or 870 − 880 or 880 − 890. Hence, the total number of workers earning more than 850 will be the sum of the numbers of all these workers i.e., 1 + 3 + 1 + 1 + 4 = 10

(iii) The workers who earn less than Rs 850 are the number of workers who fall in the group of 800 − 810 or 810 − 820 or 820 − 830 or 830 − 840 or 840 − 850. Hence, the total number of workers earning less than 850 will be the sum of the numbers of all these workers i.e., 3 + 2 + 1 + 9 + 5 = 20

Solution 5

(i) From the graph, it can be observed that the maximum number of students (i.e., 32) watched TV for 4 − 5 hours.

(ii) The students who watched TV for less than 4 hours are the students who watched TV for 1 − 2 hours or 2 − 3 hours or 3 − 4 hours.

Hence, total number of students = 4 + 8 + 22 = 34

(iii) The students who watched TV for more than 5 hours are the students who watched TV for 5 − 6 hours or 6 − 7 hours.

Hence, total number of students = 8 + 6 = 14

Chapter 5 - Data Handling Exercise Ex. 5.2

Solution 1

(i) Number of people who like classical music = 10%

This 10% represents 20 people.

$$100\ \%\ \text{represents} = \frac{20 \times 100}{10} = 200\ \text{people}$$

Therefore, 200 young people were surveyed.

(ii) From the pie chart, it can be easily observed that the light music is represented by the maximum part of the pie chart (i.e., 40 %). Hence, most of the people like light music.

(iii) Number of CD's of classical music = 10% of 1000

$$= \frac{10}{100} \times 1000$$
$$= 100$$

Number of CD's of semi-classical music = 20% of 1000 =200

Number of CD's of folk music = 30% of 1000

$$= \frac{30}{100} \times 1000$$
$$= 300$$

Number of cassettes of light music = 40% of 1000

$$= \frac{40}{100} \times 1000$$
$$= 400$$

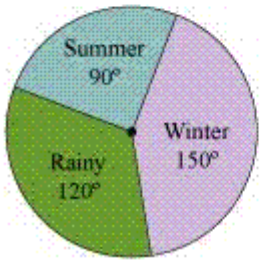
Solution 2

(i) Winter

(ii) Total number of votes = 90 + 120 + 150 = 360

Season	Number of votes	In fraction	Central angle
Summer	90	$\frac{90}{360}$	$\frac{90}{360}\times 360^\circ = 90^\circ$
Rainy	120	$\frac{120}{360}$	$\frac{120}{360}\times 360^\circ = 120^\circ$
Winter	150	$\frac{150}{360}$	$\frac{150}{360}\times 360^\circ = 150^\circ$

(iii) A pie chart can be drawn for the above data as follows.

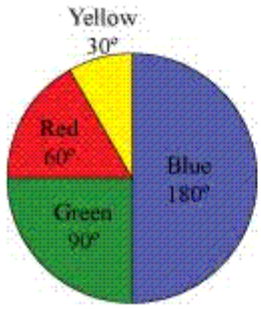


Solution 3

The central angle for each colour can be calculated as follows.

Colours	Number of people	In fraction	Central angle
Blue	18	$\frac{18}{36}$	$\frac{18}{36}\times 360^\circ = 180^\circ$
Green	9	$\frac{9}{36}$	$\frac{9}{36}\times 360^\circ = 90^\circ$
Red	6	$\frac{6}{36}$	$\frac{6}{36}\times 360^\circ = 60^\circ$
Yellow	3	$\frac{3}{36}$	$\frac{3}{36}\times 360^\circ = 30^\circ$

The pie chart of the above data is as follows.



Solution 4

(i) Total marks obtained by the student are 540. Hence, 540 marks represent 360°. The central angle for 105 marks has to be calculated.

Central angle for 105 marks $= \frac{105}{540} \times 360^\circ = 70^\circ$

Hindi is the subject having its central angle as 70°.

Therefore, the student scored 105 marks in Hindi.

(ii) Difference between the central angles of Mathematics and Hindi

$= 90^\circ - 70^\circ = 20^\circ$

Marks for 20° central angle $= \frac{20^\circ}{360^\circ} \times 540 = 30$

There is a difference of 30 marks between the score obtained in Mathematics and Hindi.

Therefore, 30 more marks were obtained by the student in Mathematics than in Hindi.

(iii) Sum of central angles of Social Science and Mathematics

$= 90^\circ + 65^\circ = 155^\circ$

Sum of central angles of Science and Hindi $= 80^\circ + 70^\circ = 150^\circ$

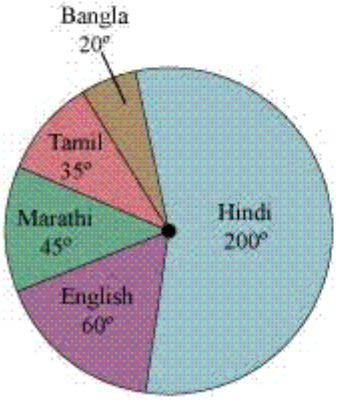
The sum of the central angles for Social Science and Mathematics is more than that of Science and Hindi. Therefore, the student scored more in Social Science and Mathematics than in Science and Hindi.

Solution 5

The central angle for each subject can be calculated as follows.

Language	Number of students	In fraction	Central angle
Hindi	40	$\frac{40}{72}$	$\frac{40}{72} \times 360^\circ = 200^\circ$
English	12	$\frac{12}{72}$	$\frac{12}{72} \times 360^\circ = 60^\circ$
Marathi	9	$\frac{9}{72}$	$\frac{9}{72} \times 360^\circ = 45^\circ$
Tamil	7	$\frac{7}{72}$	$\frac{7}{72} \times 360^\circ = 35^\circ$
Bengali	4	$\frac{4}{72}$	$\frac{4}{72} \times 360^\circ = 20^\circ$

A pie chart of the above data is as follows.



Chapter 5 - Data Handling Exercise Ex. 5.3

Solution 1

(a) On spinning the given wheel, the possible outcomes are A, B, C, D.

(b) By tossing two coins together, the possible outcomes are HT, TH, HH, TT where H and T represents Head and Tail of the coins respectively.

Solution 2

When a dice is thrown, the possible outcomes are 1, 2, 3, 4, 5, and 6.

(i) (a) Out of these outcomes, 2, 3, 5 are prime numbers. Hence, these are the outcomes of an event of getting a prime number on the face of a dice.

(b) Out of these outcomes, 1, 4, 6 are not prime numbers. Hence, these are the outcomes of an event of not getting a prime number on the face of a dice.

(ii) (a) Out of these outcomes, a number greater than 5 is possible when 6 comes on the face of the dice.

(b) Out of these outcomes, a number not greater than 5 is possible when the number on the face of the dice is any one of the outcomes 1, 2, 3, 4, 5.

Solution 3

(i) The pointer can stop at one of the following regions.

A, A, B, C, D

Out of these 5 cases, it is possible only in 1 case that the pointer will stop at region D.

Therefore, probability that the pointer will stop at region D $= \frac{1}{5}$

(ii) There are 52 cards in a deck of cards and there are 4 ace cards in 1 deck of cards.

Probability of getting an ace card $= \frac{4}{52} = \frac{1}{13}$

(iii) There are a total of 7 apples, out of which, 4 are red and 3 are green.

Probability of getting a red apple $= \frac{4}{7}$

Solution 4

(i) There are 10 slips in the box. However, 6 is written only on 1 slip.

Probability of getting a number $6 = \frac{1}{10}$

(ii) The numbers less than 6 are 1, 2, 3, 4, 5.

Probability of getting a number less than $6 = \frac{5}{10} = \frac{1}{2}$

(iii) The numbers greater than 6 are 7, 8, 9, 10.

Probability of getting a number greater than $6 = \frac{4}{10} = \frac{2}{5}$

(iv) There are 9 numbers which are single digit numbers.

1, 2, 3, 4, 5, 6, 7, 8, 9

Probability of getting a single digit number $= \frac{9}{10}$

Solution 5

Total sectors $= 3 + 1 + 1 = 5$

There are 5 sectors and we can get a green sector in three cases.

Probability of getting a green sector $= \frac{3}{5}$

We will get a non blue sector when we will get either a green sector or a red sector. Hence, 4 cases of such type are possible in which we will get a non blue sector.

Probability of getting a non blue sector $= \frac{4}{5}$

Solution 6

(i) (a) Out of 6 possible outcomes, a prime number can be obtained in three cases. Therefore, probability of getting a prime number = $\frac{3}{6} = \frac{1}{2}$

(b) Out of 6 possible outcomes, a prime number may not be obtained in three cases.

Therefore, probability of getting not a prime number = $\frac{3}{6} = \frac{1}{2}$

(ii) (a) Out of 6 possible outcomes, a number greater than 5 can be obtained in only 1 case.

Therefore, probability of getting a number greater than 5 = $\frac{1}{6}$

(b) Out of 6 possible outcomes, a number not greater than 5 can be obtained in 5 cases.

Therefore, probability of getting a number not greater than 5 = $\frac{5}{6}$
