NCERT SOLUTIONS

CLASS - 8TH

Class : 8th
Subject : Maths
Chapter : 5
Chapter Name : Data Handling

Exercise 5.1

Q1 For which of these would you use a histogram to show the data?
(a) The number of letters for different areas in a postman's bag.
(b) The height of competitors in an athletics meet.
(c) The number of cassettes produced by 5 companies.
(d) The number of passengers boarding trains from 7:00 a.m. to 7:00 p.m. at a station.
Give reasons for each.

Answer. 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.

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Q2 The shoppers who come to a departmental store are marked as: man (M), woman (W), boy (B) or girl (G). The following list gives the shoppers who came during the first hour in the morning:
W W W G B W W M G G M M W W W W G B M W B G G M W W M M W W W M W B W G M W
W W W G W M M W W M W G W M G W M M B G G W
Make a frequency distribution table using tally marks. Draw a bar graph to illustrate it.

Answer.
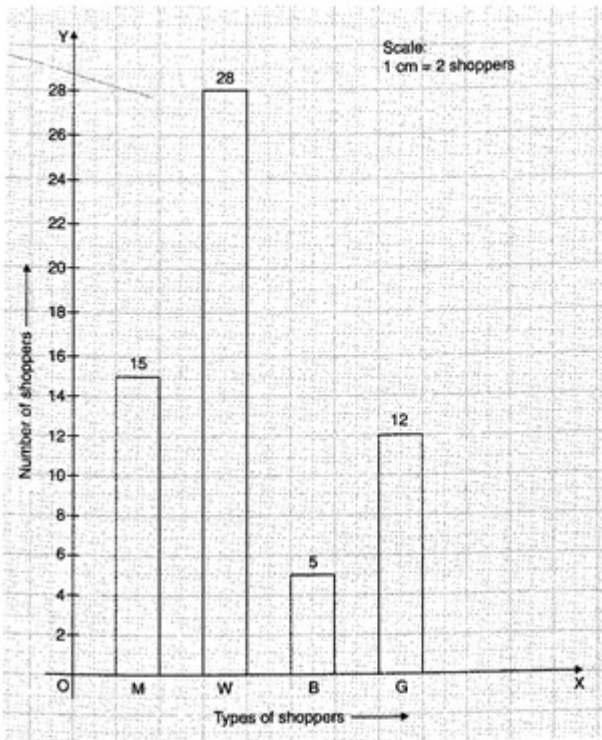
Types of Shoppers	Tally Marks	Number of Shoppers
W M B G	ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ III ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ ᑎᑎᑎᑎ II	28 15 5 12

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Q3 The weekly wages (in) of 30 workers in a factory are.
830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820, 860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835, 835, 836, 878, 840, 868, 890, 806, 840
Using tally marks make a frequency table with intervals as 800–810, 810–820 and so on.

Answer.

Class Intervals	Tally Marks	Frequency
800-810	III II I	3 2 1 9 5
810-820	NHIIIII	1 3 1 1 4
820-830	NHI I III	
830-840	I I IIII	
840-850		
850-860		
860-870		
870-880		
880-890		
890-900		

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Q4 Draw a histogram for the frequency table made for the data in Question 3, and answer the following questions.
(i) Which group has the maximum number of workers?
(ii) How many workers earn ₹850 and more?
(iii) How many workers earn less than ₹850?

Answer.
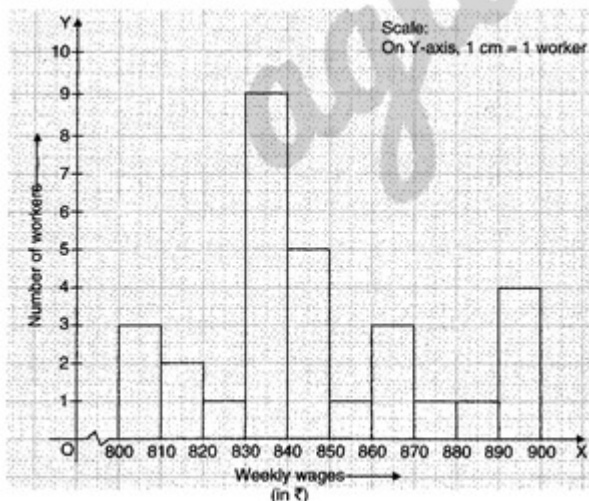
(i) Group 830-840, has the maximum number of workers.
(ii) 1 + 3 + 1 + 1 + 4 = 10, workers earn Rs. 850 and more.
(iii) 3 + 2 + 1 + 9 + 5 = 20, workers earn less than Rs. 850.

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Q5 The number of hours for which students of a particular class watched television during holidays is shown through the given graph.

Answer the following.
(i) For how many hours did the maximum number of students watch TV?
(ii) How many students watched TV for less than 4 hours?
(iii) How many students spent more than 5 hours in watching TV?
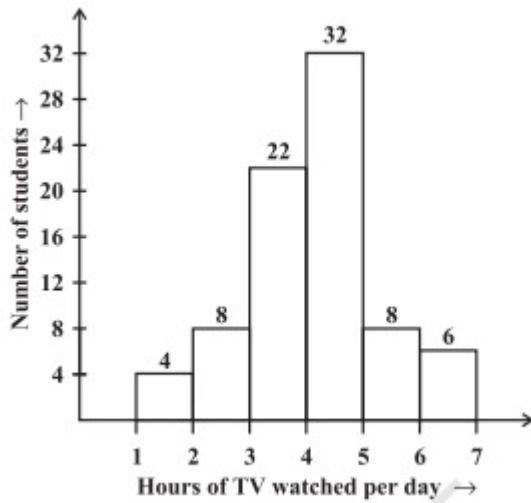
Answer. (i) From the graph, it can be observed that the maximum number os students (i.e., 32) watched TV for 4 - 5 hours.
(ii) The students who watched TV for less than 4 hours are the students who watched TV for 1 - 2 hours or 2-3 hours or 3 - 4 hours.
Hence, total number of students = 4 + 8 + 22 =34
(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

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Exercise 5.2

Q1 A survey was made to find the type of music that a certain group of young people liked in a city. Adjoining pie chart shows the findings of this survey. From this pie chart answer the following:
(i) If 20 people liked classical music, how many young people were surveyed?
(ii) Which type of music is liked by the maximum number of people?
(iii) If a cassette company were to make 1000 CD's, how many of each type would they make?
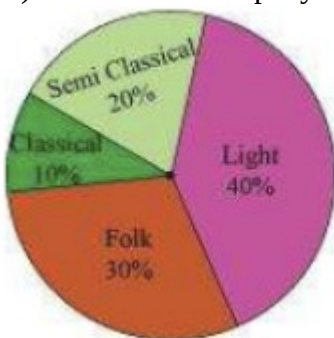
Answer. (i) Number of people who like classical music = 10%
This 10% represents 20 people.

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

Therefore, 200 young people were surveyed.

(ii) From the pie chart, it can be easily observed that the light music is represented bu 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

$= \frac{20}{100} \times 1000$

$= 200$

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

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Q2 A group of 360 people were asked to vote for their favourite season from the three seasons rainy, winter and summer.

(i) Which season got the most votes?

(ii) Find the central angle of each sector.

(iii) Draw a pie chart to show this information.

Season	Number of votes
Summer	90
Rainy	120
Winter	150

Answer. (i) Winter

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

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

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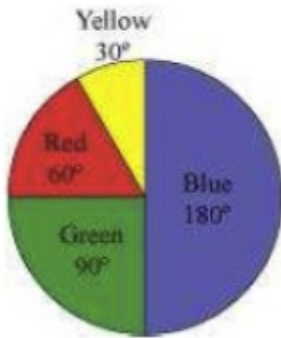

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Q3 Draw a pie chart showing the following information. The table shows the colours preferred by a group of people.

Colours	Number of people
Blue	18
Green	9
Red	6
Yellow	3
Total	**36**

Answer. The central angle for each color can be calculated as follows.

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

The pie chart of the above data is as follows.

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Q4 The adjoining pie chart gives the marks scored in an examination by a student in Hindi, English, Mathematics, Social Science and Science. If the total marks obtained by the students were 540, answer the following questions.
(i) In which subject did the student score 105 marks?
(Hint: for 540 marks, the central angle = 360°. So, for 105 marks, what is the central angle?)
(ii) How many more marks were obtained by the student in Mathematics than in Hindi?
(iii) Examine whether the sum of the marks obtained in Social Science and Mathematics is more than that in Science and Hindi.
(Hint: Just study the central angles).
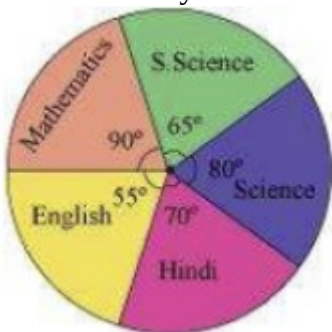
Answer. (i) Total marks obtained by the student are 540. Hence marks represent $360°$. The central angle

for 105 ,marks has to be calculated.

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

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

$= 90° - 70° = 20°$

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

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

$= 90° + 65° = 155°$

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.

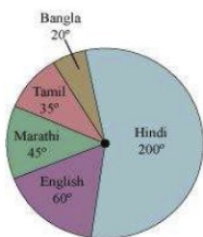Page : 82 , Block Name : Exercise 5.2

Q5 The number of students in a hostel, speaking different languages is given below. Display the data in a pie chart.

Language	Hindi	English	Marathi	Tamil	Bengali	Total
Number of students	40	12	9	7	4	72

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

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

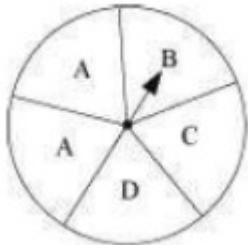A pie chart of the above data is as follows.

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Exercise 5.3

Q1 List the outcomes you can see in these experiments.
(a) Spinning a wheel.
(b) Tossing two coins together.

Answer. (a) On spinning the given wheel, the possible outcomes are A, B, C, D.
(b) By tossing two coins together, the possible outcomes are H T, T H, HH, TT where H
and T represents Head and Tail of the coins respectively.

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Q2 When a die is thrown, list the outcomes of an event of getting
(i) (a) a prime number (b) not a prime number.
(ii) (a) a number greater than 5 (b) a number not greater than 5.

Answer. 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
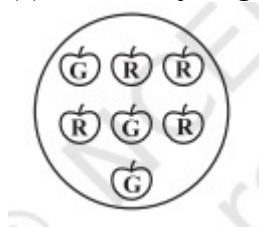number on the face of the dice is any one of the outcomes 1, 2, 3, 4, 5.

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Q3 Find the:
(a) Probability of the pointer stopping on D in (Question 1-(a))?
(b) Probability of getting an ace from a well shuffled deck of 52 playing cards?
(c) Probability of getting a red apple. (See figure below)

Answer. (a) The pointer can 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 = 1/5
(b) 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 = $\frac{4}{52} = \frac{1}{13}$
(c) There are a total of 7 apples, out of which, 4 are red and 3 are green.
Probability of getting a red apple = 4/7

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Q4 Numbers 1 to 10 are written on ten separate slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the probability of .
(i) getting a number 6?
(ii) getting a number less than 6?
(iii) getting a number greater than 6?
(iv) getting a 1-digit number?

Answer. (i) There are 10 slips in the box. However, 6 is written only on 1 slip.
Probability of getting a number 6 = 1/10
(ii) The numbers less than 6 are 1,2,3,4,5.
Probability of getting a number less than 6 = 5/10 = 1/2
(iii) The numbers greater than 6 are 7.8,9,10.
Probability of getting a number greater than 6 = 4/10 = 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 = 9/10

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Q5 If you have a spinning wheel with 3 green sectors, 1 blue sector and 1 red sector, what is the probability of getting a green sector? What is the probability of getting a non blue sector?

Answer. 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 = 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 = 4/5

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Q6 Find the probabilities of the events given in Question 2.

Answer. (i) (a) Out of 6 possible outcomes, a prime number can be obtained in three cases.
Therefore, probability of getting a prime number = 3/6 = 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 = 3/6 = 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 = 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 = 5/6

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