CHAPTER-13
INFORMATION HANDLING

Students Learning Outcomes

After studying this chapter, students will be able to:

- Demonstrate data presentation.
- Define frequency distribution (i.e. frequency, lower class limit, upper class limit, class interval).
- Interpret and draw pie graphs.

SOLVED EXERCISE 13.1

1. The telephone bills paid by 12 consumers are given below. Make a frequency table of 5 classes of an equal size.

510, 700, 356, 603, 422, 674, 481, 545, 718,592, 685, 569

Solution:

Here $x_\ell = 356$

$x_m = 718$

Size of class interval

$$= \frac{x_m - x_\ell}{5}$$

$$= \frac{718 - 356}{5} = 72.4$$

$$= 73$$

Class Interval	Tally Marks	Frequency
356 – 428	||	2
429 – 501	|	1
502 – 574	|||	3
575 – 647	||	2
648 – 720	||||	4

2. In a board examination, 20 students of the Dawn Public School got the following marks out of 850 marks. Construct a frequency table by taking 100 as a class interval.

551, 786, 678, 725, 788, 580, 720, 690, 750, 651. 599, 609, 719, 760, 715, 775, 646,667,753, 675

Class Interval	Tally Marks	Frequency
551 – 650	𝍸 I	5
651 – 750	𝍸 𝍸	10
751 – 850	𝍸	5

3. The daily wages of 15 workers are given below. Make a frequency table of 4 classes of an equal size.

400,225,250,380,425,175,230.325,150, 300, 200, 180, 350,375, 200

Solution:

Here $x_\ell = 150$

$x_m = 425$

No of class interval = 4

Size of class interval $= \dfrac{x_m - x_\ell}{\text{No of interval}}$

$= \dfrac{425-150}{4} = \dfrac{275}{4} = 68.7$

$= 69$

Class Interval	Tally Marks	Frequency
150 – 218	𝍸	5
219 – 287	III	3
288 – 356	III	3
357 – 425	IIII	4

4. A cricket player made the list of his last 18 innings scores which is given below.

122,102,72,99,89,106,99,85,92,108,102,98,95,76,80,65,101,96,

Make a frequency table of 6 classes of an equal size.

Solution:

Here $x_\ell = 65$

$x_m = 122$

No of class interval = 6

Size of class interval $= \dfrac{x_m - x_\ell}{\text{No of interval}}$

$= \dfrac{122-65}{6} = \dfrac{57}{6} = 9.5$

$= 10$

Class Interval	Tally Marks	Frequency
65 – 74	||	2
75 – 84	||	2
85 – 94	|||	3
95 – 104	𝍸 |||	8
105 – 114	||	2
115 – 124	|	1

5. The following data shows the distance in km that was travelled by Mr. Usman in the last 21 days.

77, 58, 62, 85, 32,71,59,60,38,32,69,80, 76, 92, 61, 82,74,70,99,44,53

Make a frequency table of 5 classes of an equal size.

Solution:

Here $x_\ell = 32$

$x_m = 99$

No of interval = 5

$$\text{Size of interval} = \frac{x_m - x_\ell}{\text{No of interval}}$$

$$= \frac{99-32}{5}$$

$$= \frac{67}{5} = 14$$

Class Interval	Tally Marks	Frequency
32 – 45	||||	4
46 – 59	|||	3
60 – 73	𝍸 |	6
74 – 87	𝍸 |	6
88 – 101	||	2

6. The following data is showing the sale of a bike company during the last months.

571, 692, 700, 533, 832, 744, 649, 584, 613, 735, 872, 900, 512, 864, 654, 782, 777, 555,632,880,628,529, 680,756, 567, 548, 824,719,678,721

Make a frequency table by taking 100 as a class interval.

Solution:

Class Interval	Tally Marks	Frequency
512 – 611	𝍸 |||	8
612 – 711	𝍸 ||||	9
712 – 811	𝍸 ||	7
812 – 911	𝍸 |	6

SOLVED EXERCISE 13.2

1. Hina went shopping and spent 30% of her pocket money for food, 35% on buying books, 20% on school dress and saved 15%. Represent the data on a pie graph.

Solution:

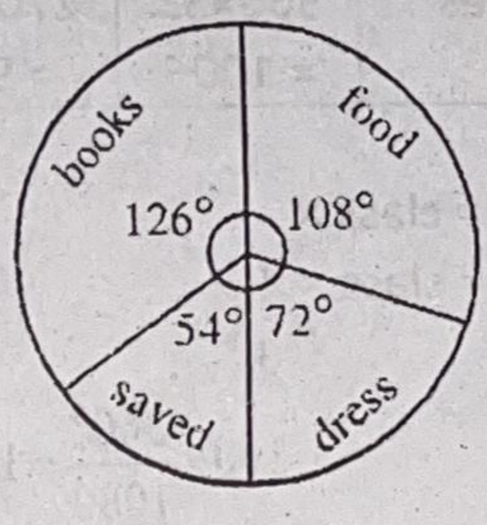
Food = 30% of 360°

= × 360° = 108°

Books = × 360° = 126°

Dress = × 360° = 72°

Save = × 360° = 54°



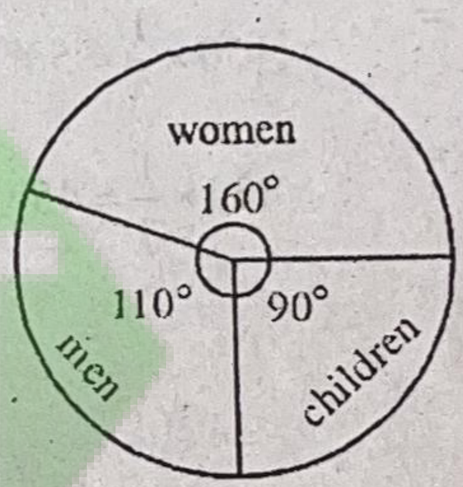
2. A media reporter conducted a survey of persons visiting the market during the two hours. He found that 720 persons visited the market out of which 320 were women, 220 men and 180 children. Draw a pie graph.

Solution:

Women = × 360° = 160°

Men = $\frac{220}{720}$ × 360° = 110°

Children = (11/36) × 360° = 90°

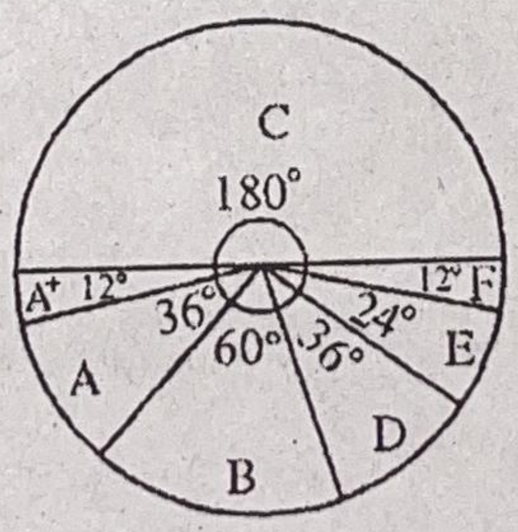


3. In a class, the grades obtained by the students in the final examination are given below. Draw the pie graph.

Grade	A+	A	B	C	D	E	F
No. of Students	2	6	10	30	6	4	2
Angles	×360 =12°	6× =36°	10× =60°	30× =180°	6× =36°	4× =24°	2× =12°

Total No of Students = 60

Solution:



4. Details of students in five classes of a school are given below. Draw a pie graph to show the comparison.

Class	I	II	III	IV	V
No. of Students	300	270	225	150	135
Angles	300×33 = 100°	270×33 = 90°	75°	50°	45°

Total = 1080

Angle = class ×

= class × $\frac{1}{3}$

I Angles = $300\times\frac{360^\circ}{1080}=100^\circ$

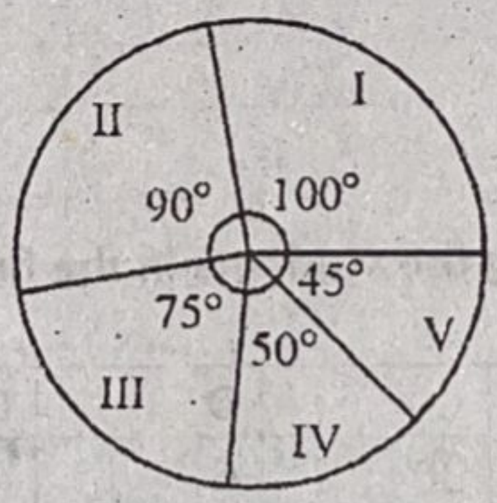
II Angles = $270\times\frac{360^\circ}{1080}=270\times\frac{1}{3}=90^\circ$

III Angles = $225\times\frac{1}{3}=75^\circ$

IV Angles = $150\times\frac{1}{3}=50^\circ$

V Angles = $135\times\frac{1}{3}=45^\circ$

Solution:



5. Noreen has the following types of books in her library. Draw pie graphs showing the information.

Subject No. of books	English	Islamic	Stories	Poems
	180	90	60	30

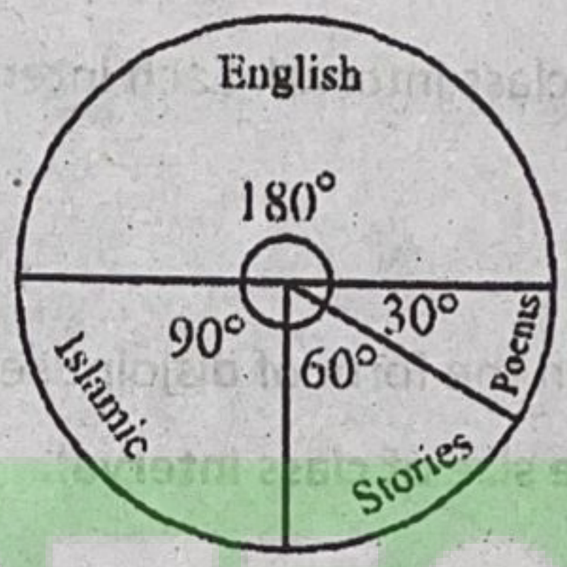
No of books = 360

English = 180 × = 180°

Islamic = × 360° = 90°

Stories = × 360° = 60°

Poems = × 360° = 30°



SOLVED REVIEW EXERCISE 13

1. Answer the following questions.

(i) What is meant by the grouped data?

Answer:

After arranging the data for desired information, it is called grouped data.

(ii) Define a class interval.

Answer:

Each group of data is also known as the class interval. Each interval represents all the values of a group.

(iii) Define a pie graph.

Answer:

The representation of a numerical data in the form of disjoint sectors of a circle is called a pie graph.

(iv) Write the formula for finding the size of class interval.

Answer:

(v) Which method is called tallying?

Answer:

The method that we used to record the results in the table is called tallying in which we draw the marks according to the numbers of individuals of a group.

2. Fill in the blanks.

(i) Data means a group of information that are normally the results of measurements, observations and experiments.

(ii) Each interval represents all the values of a group.

(iii) Data is collected in raw form and it provides us information about individuals.

(iv) The method which is used to record the result is called tallying.

(v) The greatest value of a class interval is called the upper class limit.

(vi) The number of values in a class interval is called its frequency.

(vii) The representation of-a. Numerical data in the form of disjoint sectors of a circle is called a pie graph.

3. Tick (✓) the correct answer.

(i) In pie graph, the central angle measures:

(a) 90° (b) 180° (c) 240° (d)✓ 360°

(ii) In the class interval (1.2 — 53), the upper class limit is:

(a) 11 (b) 12 (c)✓ 53 (d) 54

(iii) In the class interval (7 — 15), the lower class limit is:

(a) 6 (b)✓ 7 (c) 15 (d) 16

(iv) In a grouped data, greatest value = 21, lowest value = 3, and number of interval = 3, then the size of the class is:

(a) 3 (b)✓ 6 (c) 18 (d) 21

4. The ages of patients in years admitted in a hospital during a week are given below. Group the data taking 10 as the size of an interval.

25, 50, 49, 47, 26, 10, 2, 1, 15, 17, 18, 19, 27, 28, 30, 35, 40, 37, 32, 31, 3, 4, 7, 10, 15, 12, 13,17,14,20,22, 24,26,30,17, 35, 40,36,32,31,37

Solution:

Here $x_\ell = 1$

$x_m = 50$

S = Size of interval = $\frac{x_m - x_\ell}{S}$

No of interval = $\frac{50-1}{10} = \frac{49}{10}$

$= 5$

Class Interval	Tally Marks	Frequency
1 – 10	𝍸 II	7
11 – 20	𝍸 𝍸 I	11
21 – 30	𝍸 IIII	9
31 – 40	𝍸 𝍸 I	11
41 – 50	III	3

5. The following data shows the distance in km that Mr.Ghani traveled in last month.
90, 44, 15, 19, 28, 9, 92,17, 8, 84, 50, 60, 77, 69, 24, 89, 63, 74, 35, 48, 39, 81, 58,37,55,67,46,30,26,79.
Construct the frequency table of 6 classes of an equal size.

Solution:

Here $x_\ell = 8$

$x_m = 92$

No of interval = 6

Size of interval = $\dfrac{x_m - x_\ell}{\text{No of interval}}$

$= \dfrac{92-8}{6} = \dfrac{84}{6} = 14$

Size of interval = 15

Class Interval	Tally Marks	Frequency
8 – 22	𝍸	5
23 – 37	𝍸 I	6
38 – 52	𝍸	5
53 – 67	𝍸	5
68 – 82	𝍸	5
83 – 97	IIII	4

6. **Ali and his friends eat breads in a day as shown in the table.**

Meals	Breakfast	Lunch	Dinner	Supper
No. of Breads	12	24	16	8

By using the table, draw a pie graph.

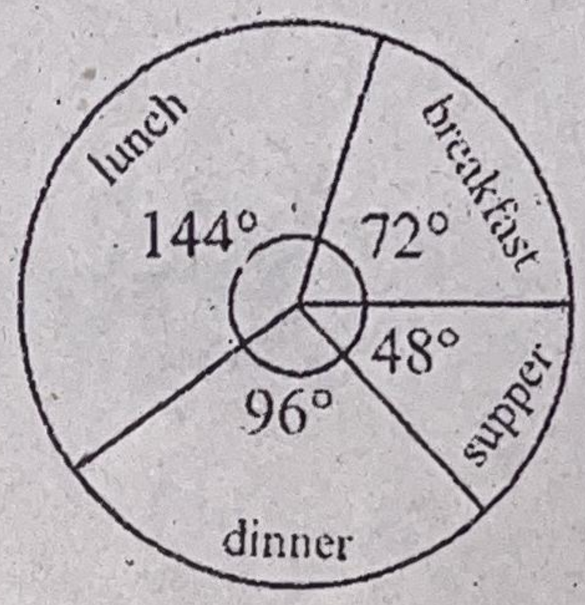
Solution:

Breakfast = × 360° = 72°

Lunch = × 360° = 144°

Dinner = × 360° = 96°

Supper = × 360° = 48°



7. **In a party, a host served the guest by following food items.**

Food Items	Cold drink	Sandwich	Burger	Cake
Quantity	180	124	330	86

Use the table to draw a pie graph.

Total Food items = 180 + 124 + 330 + 86

= 720

Solution:

Breakfast = × 360° = 90°

Sandwich = × 360° = 62°

Burger = × 360° = 165°

Cake = × 360° = 43°