

Access answers to Maths RD Sharma Solutions For Class 8 Chapter 25 Data Handling – III (Pictorial Representation of Data as Pie Charts or Circle Graphs)

EXERCISE 25.1 PAGE NO: 25.12

1. The number of hours, spent by a school boy on different activities in a working day, is given below:

Activities	Sleep	School	Home	Play	Others	Total
Number of Hours	8	7	4	2	3	24

Present the information in the form of a pie-chart.

**Solution:**

Here, total number of hours = 24

So,

The central angle = (component value/24)  $\times$  360°

The central angle for each activity will be calculated as follows

Activity	Number of Hours	Central Angle
Sleep	8	$8/24 \times 360^\circ = 120^\circ$
School	7	$7/24 \times 360^\circ = 105^\circ$
Home	4	$4/24 \times 360^\circ = 60^\circ$
Play	2	$2/24 \times 360^\circ = 30^\circ$
Others	3	$3/24 \times 360^\circ = 45^\circ$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Here, it is 120°. Construct a sector of central angle 120° whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



2. Employees of a company have been categorized according to their religions as given below:

Religious	Hindu	Muslim	Sikh	Christian	Total
Number of Workers	420	300	225	105	1080

Draw a pie-chart to represent the above information.

**Solution:**

Here, total number of workers = 1080

So,

The central angle =  $(\text{component value}/1080) \times 360^\circ$

The central angle for each activity will be calculated as follows

Religious	Number of Workers	Central Angle
Hindu	420	$420/1080 \times 360^\circ = 144$
Muslim	300	$300/1080 \times 360^\circ = 102.9$
Sikh	225	$225/1080 \times 360^\circ = 77.14$
Christian	105	$105/1080 \times 360^\circ = 36$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

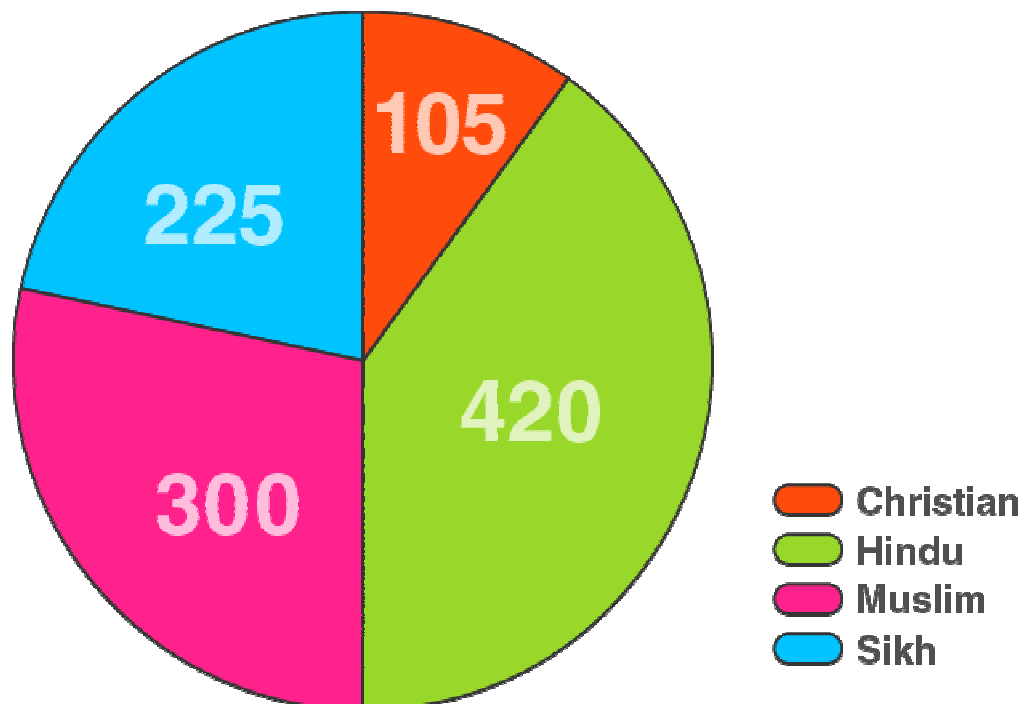
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



3. In one day the sales (in rupees) of different items of a baker's shop are given below:

Items	Ordinary bread	Fruit bread	Cakes and Pastries	Biscuits	Others	Total
Sales (in Rs)	260	40	100	60	20	780

Draw a pie-chart to represent the above information.

**Solution:**

Here, total sales = 780

So,

The central angle =  $(\text{component value}/780) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	Sales (in Rs)	Central Angle
Ordinary bread	260	$260/780 \times 360^\circ = 195$
Fruit bread	40	$40/780 \times 360^\circ = 30$
Cakes and Pastries	100	$100/780 \times 360^\circ = 75$
Biscuits	60	$60/780 \times 360^\circ = 45$
Others	20	$20/780 \times 360^\circ = 15$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

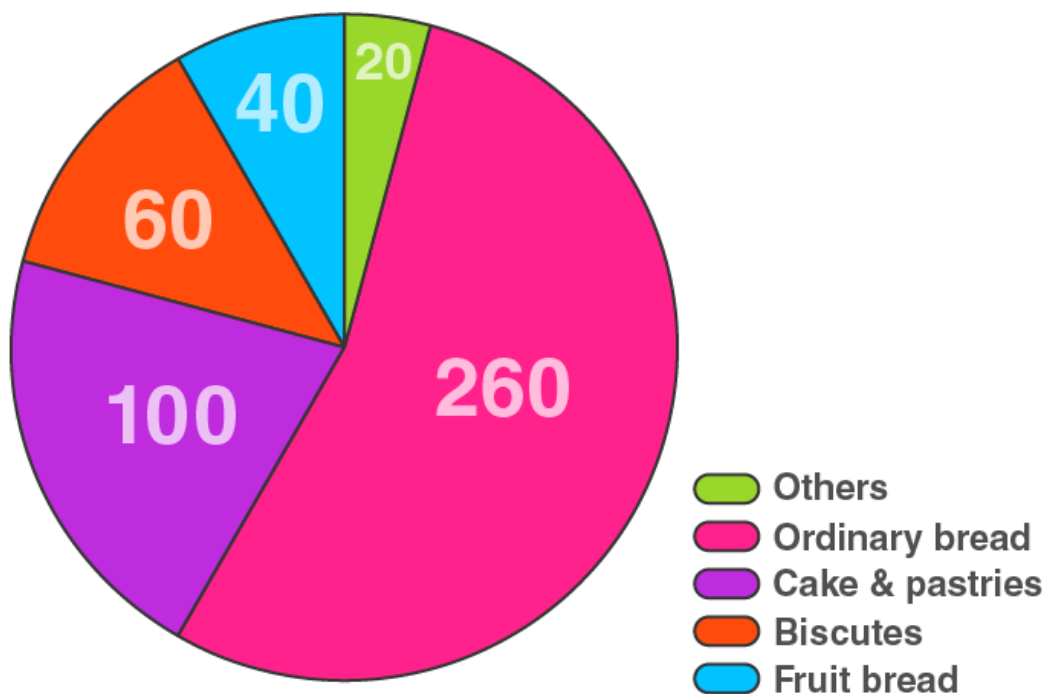
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure



4. The following data shows the expenditure of a person on different items during a month. Represent the data by a pie-chart.

Items of expenditure	Rent	Education	Food	Clothing	Others
Amount (in Rs)	2700	1800	2400	1500	2400

**Solution:**

Here, total amount = Rs 10800

So,

The central angle =  $(\text{component value}/10800) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items of expenditure	Amount (in Rs)	Central angle
Rent	2700	$2700/10800 \times 360^\circ = 90$
Education	1800	$1800/10800 \times 360^\circ = 60$
Food	2400	$2400/10800 \times 360^\circ = 80$
Clothing	1500	$1500/10800 \times 360^\circ = 50$
Others	2400	$2400/10800 \times 360^\circ = 80$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

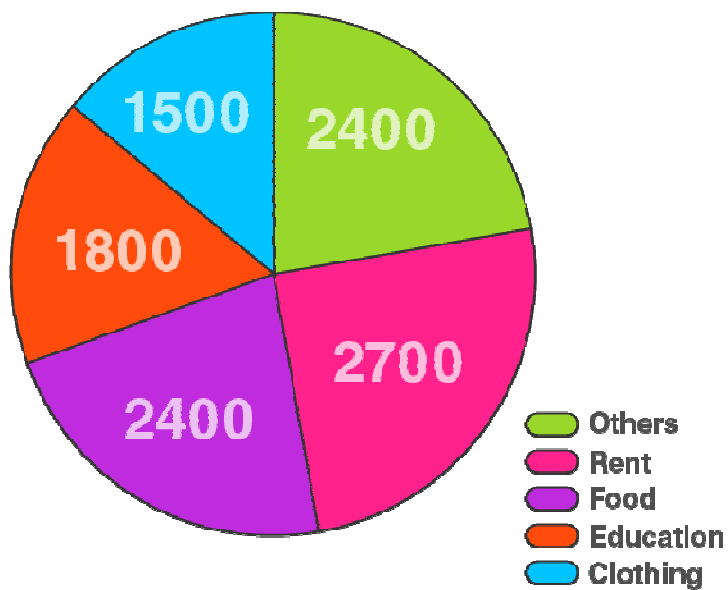
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



5. The percentages of various categories of workers in a state are given in the following table.

Categories	Cultivators	Agricultural Labourers	Industrial Workers	Commercial Workers	Others
% of workers	40	25	12.5	10	12.5

Present the information in the form of a pie-chart.

**Solution:**

Here, total % of workers = 100%

So,

The central angle =  $(\text{component value}/100) \times 360^\circ$

The central angle for each activity will be calculated as follows

Categories	% of workers	Central angle
Cultivators	40	$40/100 \times 360^\circ = 144$
Agricultural Labourers	25	$25/100 \times 360^\circ = 90$
Industrial Workers	12.5	$12.5/100 \times 360^\circ = 45$
Commercial Workers	10	$10/100 \times 360^\circ = 36$
Others	12.5	$12.5/100 \times 360^\circ = 45$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

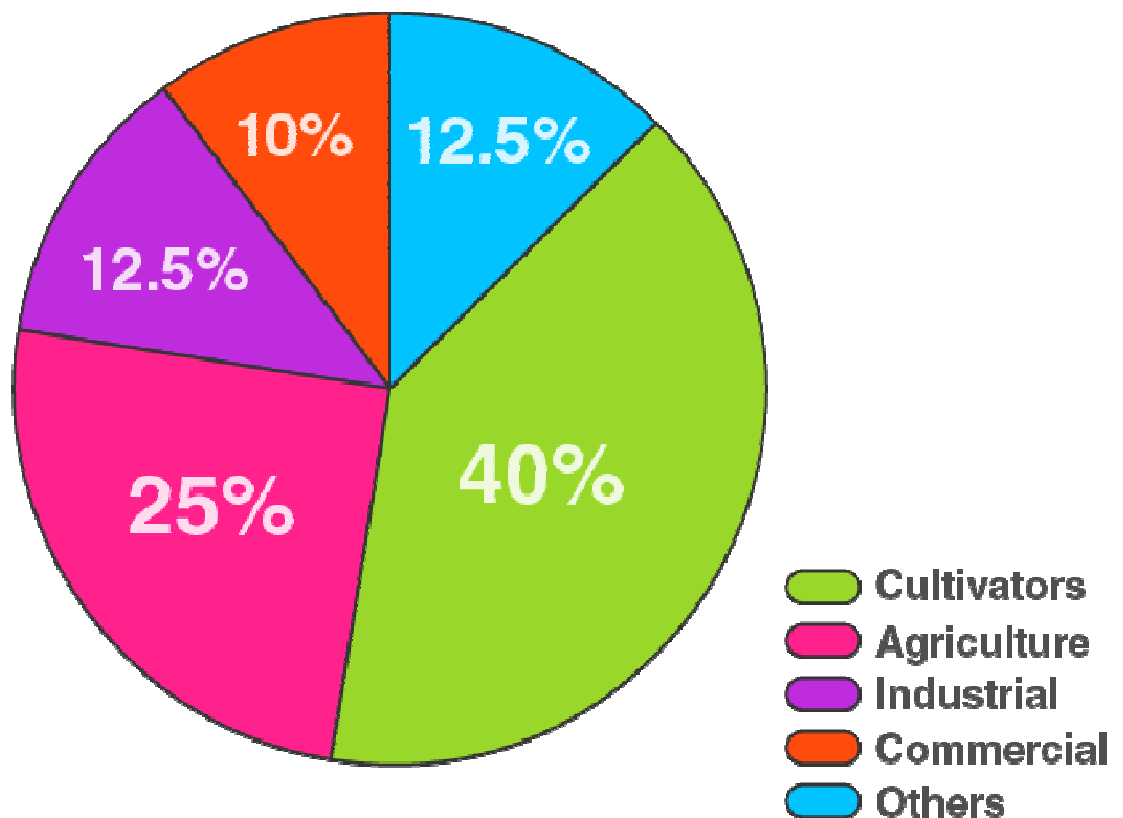
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



6. The following table shows the expenditure incurred by a publisher in publishing a book:

Items	Papers	Printing	Binding	Advertising	Miscellaneous
Expenditure (in %)	35%	20%	10%	5%	30%

Present the above data in the form of pie-chart.

**Solution:**

Here, total Expenditure (in %) = 100%

So,

The central angle = (component value/100)  $\times$  360°

The central angle for each activity will be calculated as follows

Items	Expenditure (in %)	Central angle
Papers	35%	$35/100 \times 360^\circ = 126$
Printing	20%	$20/100 \times 360^\circ = 72$
Binding	10%	$10/100 \times 360^\circ = 36$
Advertising	5%	$5/100 \times 360^\circ = 18$
Miscellaneous	30%	$30/100 \times 360^\circ = 108$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

Step 1: Draw the circle of an appropriate radius.

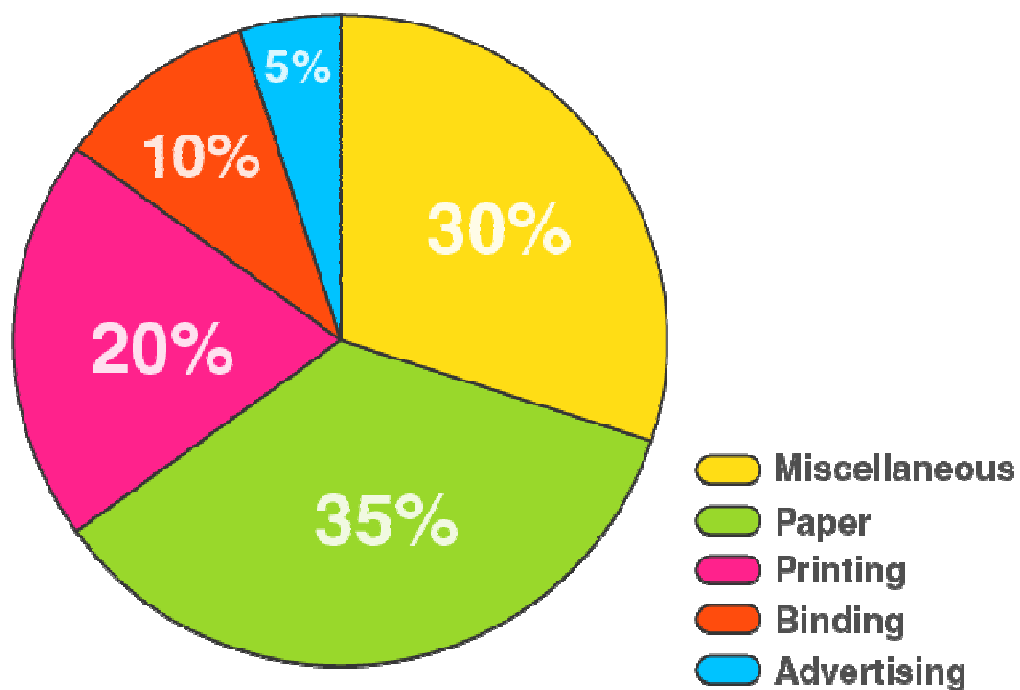
Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.





7. Percentage of the different products of a village in a particular district are given below. Draw a pie chart representing this information.

Items	Wheat	Pulses	Jwar	Groundnuts	Vegetables	Total
%	125/3	125/6	25/2	50/3	25/3	100

**Solution:**

Here, total % = 100%

So,

The central angle =  $(\text{component value}/100) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	%	Central angle
Wheat	125/3	$(125/3)/100 \times 360^\circ = 150$
Pulses	125/6	$(125/6)/100 \times 360^\circ = 75$
Jwar	25/2	$(25/2)/100 \times 360^\circ = 45$
Groundnuts	50/3	$(50/3)/100 \times 360^\circ = 60$

Vegetables	25/3	$(25/3)/100 \times 360^\circ = 30$
------------	------	------------------------------------

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

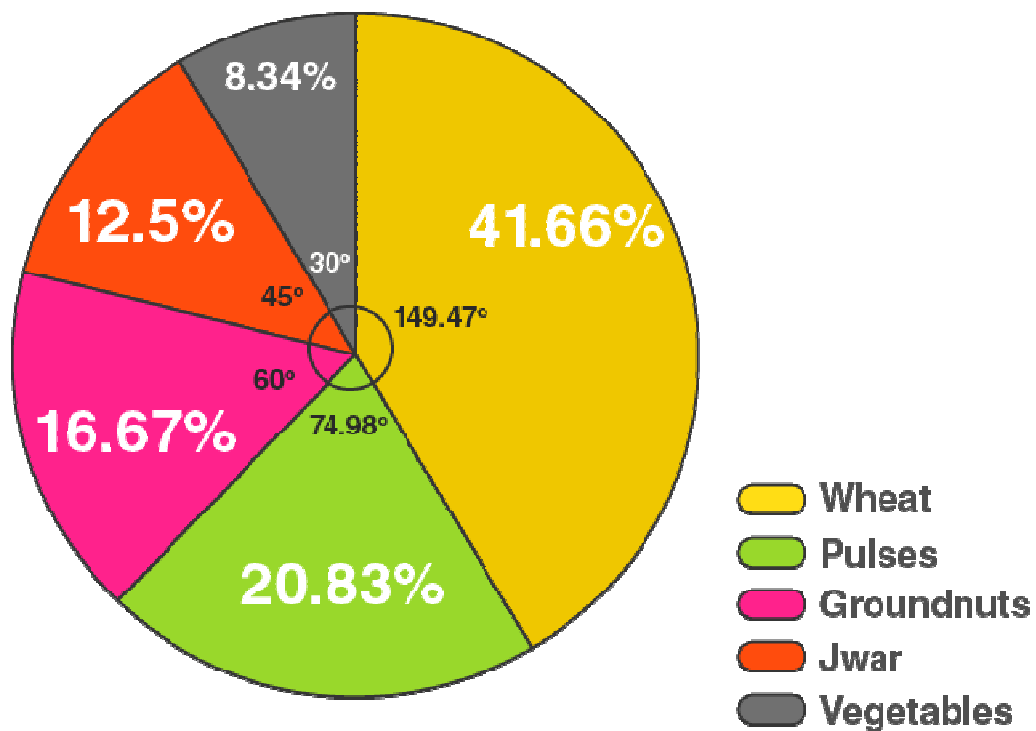
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



8. Draw a pie diagram for the following data of expenditure pattern in a family:

Items	Food	Clothing	Rent	Education	Unforeseen events	Medicine
Expenditure (in %)	40%	20%	10%	10%	15%	5%

**Solution:**

Here, total % = 100%

So,

The central angle = (component value/100) × 360°

The central angle for each activity will be calculated as follows

Items	Expenditure (in %)	Central angle
Food	40%	$40/100 \times 360^\circ = 144$
Clothing	20%	$20/100 \times 360^\circ = 72$
Rent	10%	$10/100 \times 360^\circ = 36$
Education	10%	$10/100 \times 360^\circ = 36$
Unforeseen events	15%	$15/100 \times 360^\circ = 54$
Medicines	5%	$5/100 \times 360^\circ = 18$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

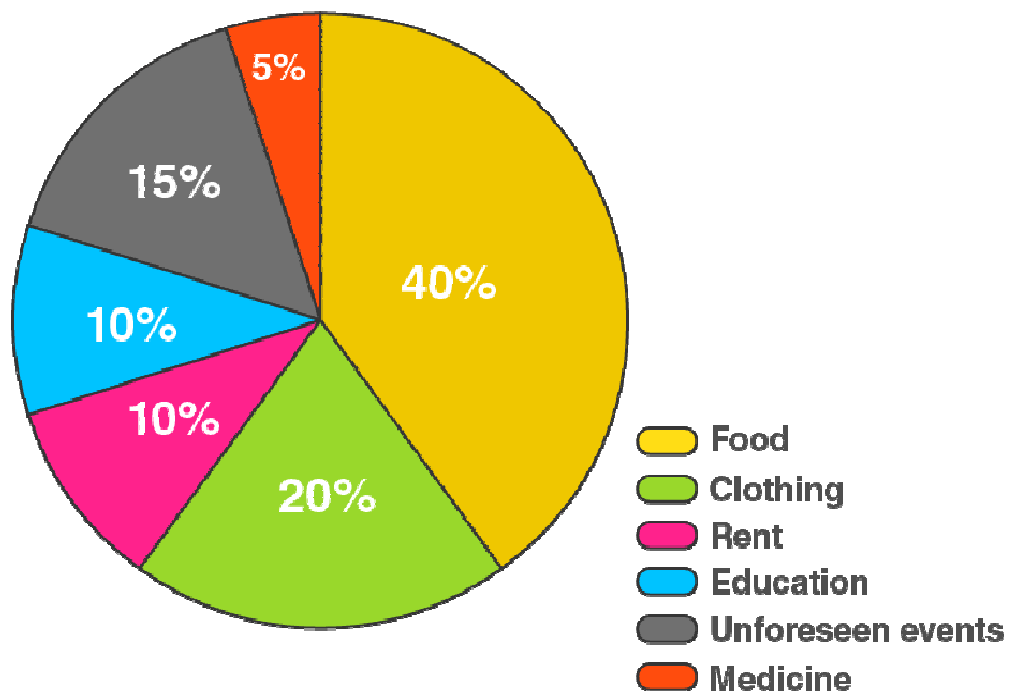
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



9. Draw a pie diagram of the areas of continents of the world given in the following table:

Continents	Asia	U.S.S.R	Africa	Europe	North America	South America	Australia
Area (in million sq.km)	26.9	20.5	30.3	4.9	24.3	17.9	8.5

**Solution:**

Here, total Area = 133.3 million sq.km

So,

The central angle =  $(\text{component value}/133.3) \times 360^\circ$

The central angle for each activity will be calculated as follows

Continents	Area (in million sq.km)	Central angle
Asia	26.9	$26.9/133.3 \times 360^\circ = 72.6$
U.S.S.R	20.5	$20.5/133.3 \times 360^\circ = 55.4$
Africa	30.3	$30.3/133.3 \times 360^\circ = 81.8$
Europe	4.9	$4.9/133.3 \times 360^\circ = 13.2$
North America	24.3	$24.3/133.3 \times 360^\circ = 65.6$
South America	17.9	$17.9/133.3 \times 360^\circ = 48.3$
Australia	8.5	$8.5/133.3 \times 360^\circ = 23$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

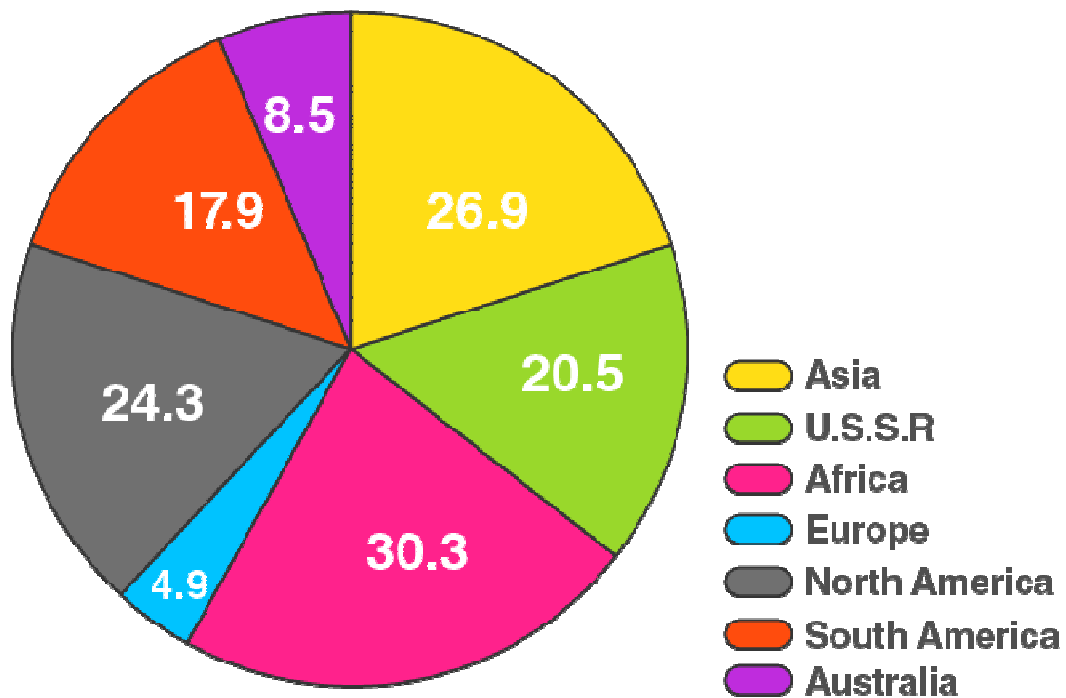
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



10. The following data gives the amount spent on the construction of a house. Draw a pie diagram.

Items	Cement	Timber	Bricks	Labour	steel	Miscellaneous
Expenditure (in thousand Rs)	60	30	45	75	45	45

**Solution:**

Here, total Expenditure = 300 thousand rupees

So,

The central angle =  $(\text{component value}/300) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	Expenditure (in thousand Rs)	Central angle
Cement	60	$60/300 \times 360^\circ = 72$
Timber	30	$30/300 \times 360^\circ = 36$
Bricks	45	$45/300 \times 360^\circ = 54$

Labour	75	$75/300 \times 360^\circ = 90$
Steel	45	$45/300 \times 360^\circ = 54$
Miscellaneous	45	$45/300 \times 360^\circ = 54$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

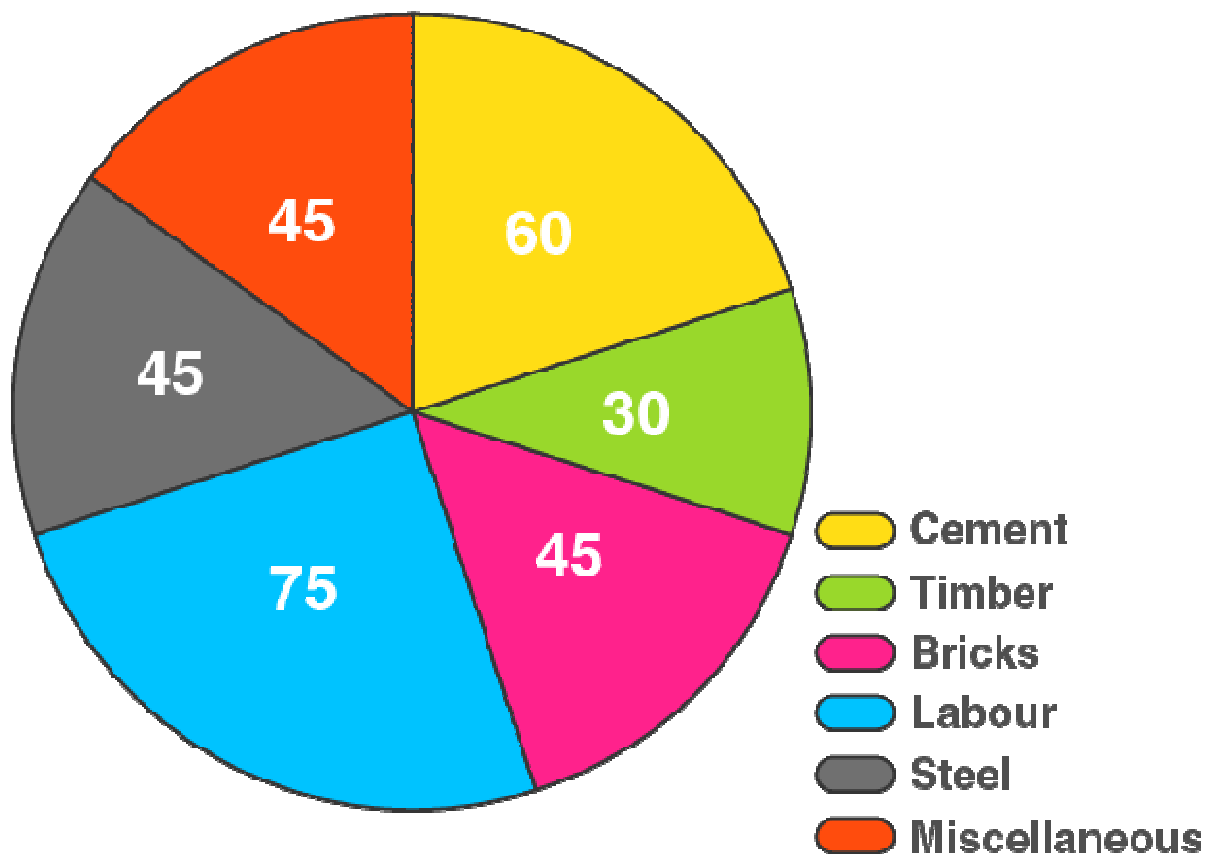
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



11. The following table shows how a student spends his pocket money during the course of a month. Represent it by a pie diagram.

Items	Food	Entertainment	Other Expenditure	Savings
Expenditure	40%	25%	20%	15%

**Solution:**

Here, total Expenditure = 100%

So,

The central angle = (component value/100)  $\times$  360°

The central angle for each activity will be calculated as follows

Items	Expenditure	Central angle
Food	40%	$40/100 \times 360^\circ = 144$
Entertainment	25%	$25/100 \times 360^\circ = 90$
Other Expenditure	20%	$20/100 \times 360^\circ = 72$
Savings	15%	$15/100 \times 360^\circ = 54$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

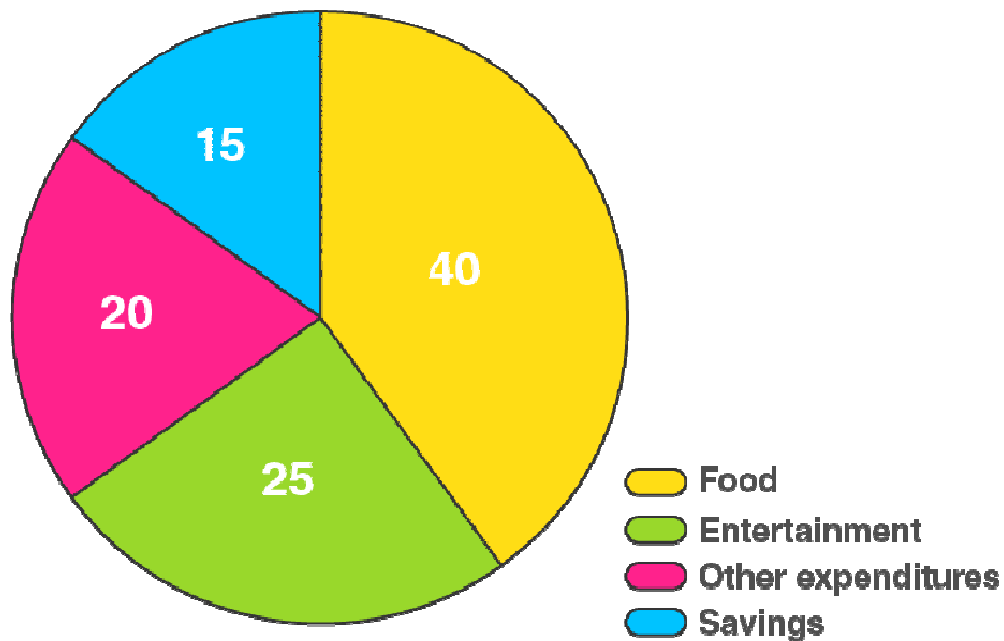
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



12. Represent the following data by a pie diagram:

Items of expenditure	Expenditure
	Family A Family B
Food	4000 6400
Clothing	2500 480
Rent	1500 3200
Education	400 1000
Miscellaneous	1600 600
Total	10000 16000

**Solution:**

Here, the total expenditure of family A = 10000 and family B = 11680

The central angle for family A =  $(\text{component value}/10000) \times 360^\circ$

The central angle for family B =  $(\text{component value}/11680) \times 360^\circ$

Hence, the central angle for each activity will be calculated as follows



Items of expenditure	Expenditure of Family A	Expenditure of Family B	Central angle of Family A	Central angle of Family B
Food	4000	6400	$4000/10000 \times 360^\circ = 144$	$6400/11680 \times 360^\circ = 197.3$
Clothing	2500	480	$2500/10000 \times 360^\circ = 90$	$480/11680 \times 360^\circ = 14.8$
Rent	1500	3200	$1500/10000 \times 360^\circ = 54$	$3200/11680 \times 360^\circ = 98.6$
Education	400	1000	$400/10000 \times 360^\circ = 14.4$	$1000/11680 \times 360^\circ = 30.8$
Miscellaneous	1600	600	$1600/10000 \times 360^\circ = 57.6$	$600/11680 \times 360^\circ = 18.5$

Now, the pie-chart for Family A and Family B can be constructed by using the given data.

Steps to construct:

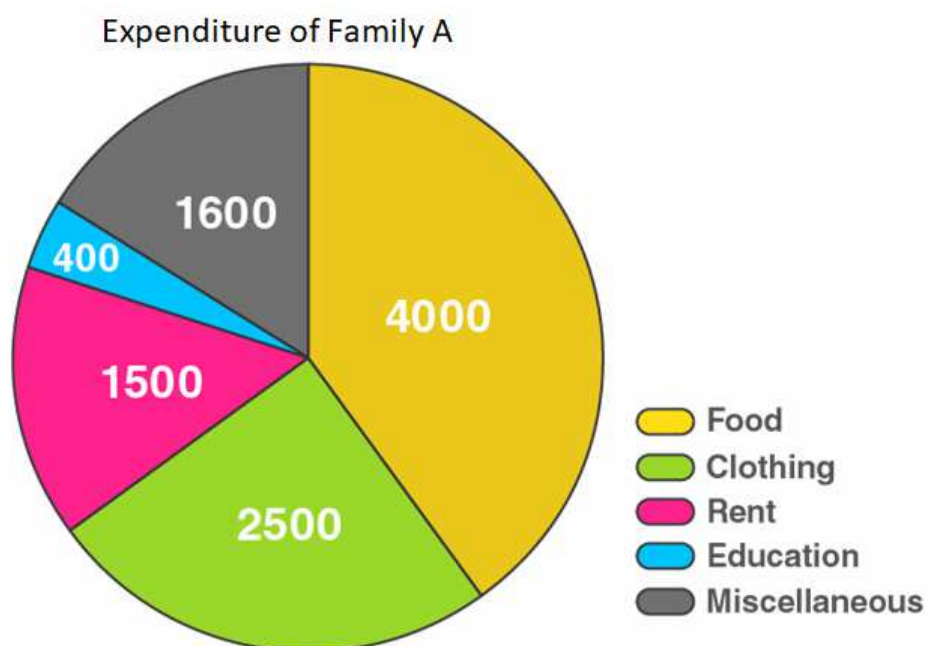
Step 1: Draw the circle of an appropriate radius.

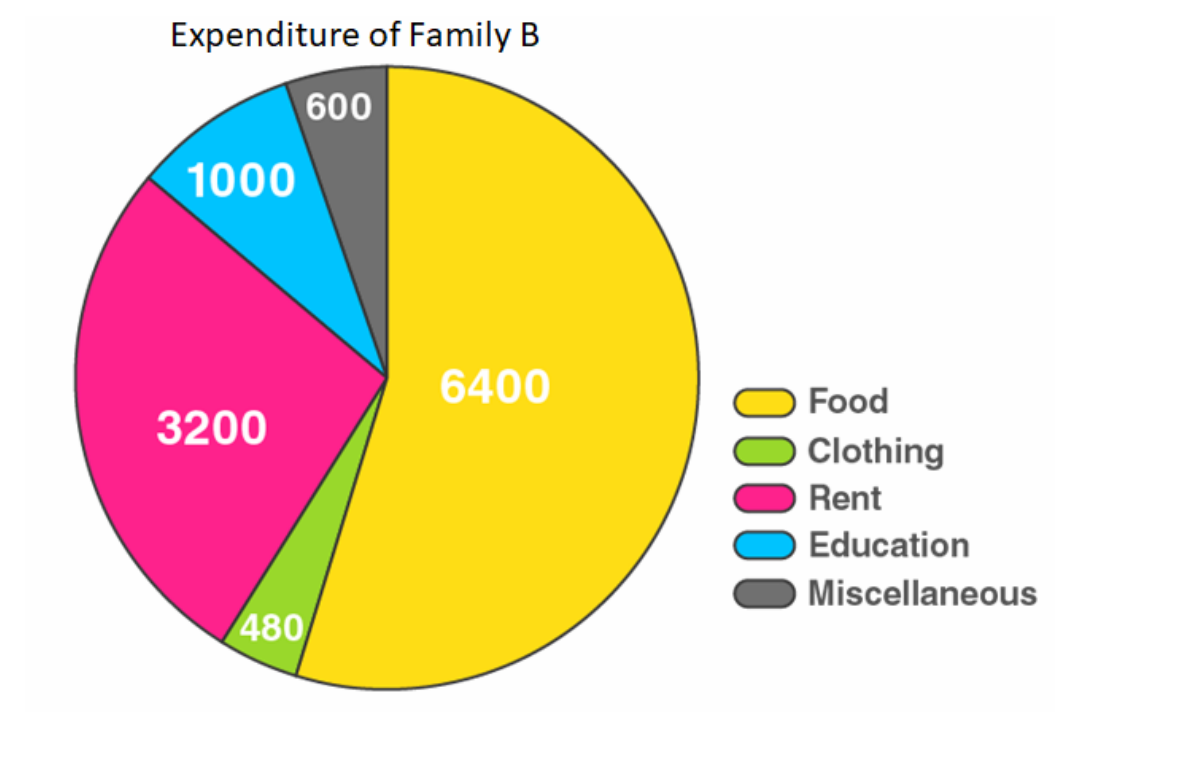
Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.





13. Following data gives the break up of the cost of production of a book:

Printing	Paper	Binding charges	Advertisement	Royalty	Miscellaneous
30%	15%	15%	20%	10%	15%

Draw a pie-diagram depicting the above information.

**Solution:**

Here, total cost of production of book = 105%

So,

The central angle =  $(\text{component value}/105) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	Expenditure	Central angle
Printing	30%	$30/105 \times 360^\circ = 102.9$
Paper	15%	$15/105 \times 360^\circ = 51.4$
Binding charges	15%	$15/105 \times 360^\circ = 51.4$
Advertisement	20%	$20/105 \times 360^\circ = 68.6$

Royalty	10%	$10/105 \times 360^\circ = 34.3$
Miscellaneous	15%	$15/105 \times 360^\circ = 51.4$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

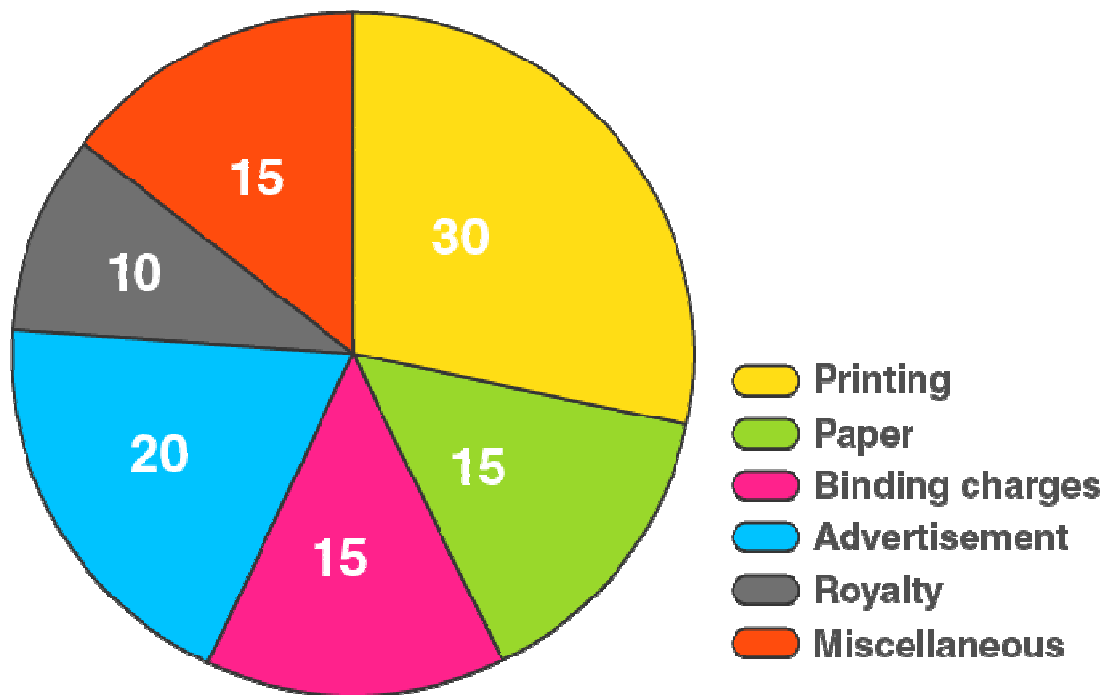
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



14. Represent the following data with the help of pie diagram:

Items	Wheat	Rice	Tea
Production (in metric tons)	3260	1840	900

Solution:

Here, total cost of production = 6000 metric tons

So,

The central angle =  $(\text{component value}/6000) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	Production	Central angle
Wheat	3260	$3260/6000 \times 360^\circ = 195.6$
Rice	1840	$1840/6000 \times 360^\circ = 110.4$
Tea	900	$900/6000 \times 360^\circ = 54$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

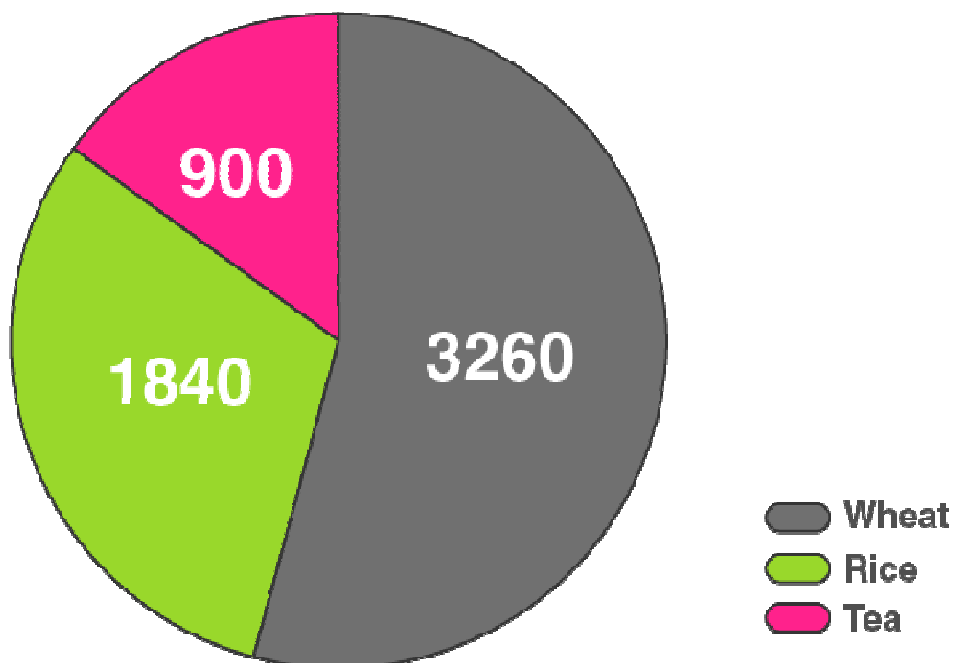
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



**15. Draw a pie-diagram representing the relative frequencies (expressed as percentage) of the eight classes as given below:**

**12.6, 18.2, 17.5, 20.3, 2.8, 4.2, 9.8, 14.7**

**Solution:**

Here, total amount = 100.1%

So,

The central angle =  $(\text{component value}/100.1) \times 360^\circ$

The central angle for each activity will be calculated as follows

Class	Amount (in %)	Central angle
1	12.6	$12.6/100.1 \times 360^\circ = 45.3$
2	18.2	$18.2/100.1 \times 360^\circ = 65.5$
3	17.5	$17.5/100.1 \times 360^\circ = 62.9$
4	20.3	$20.3/100.1 \times 360^\circ = 73$
5	2.8	$2.8/100.1 \times 360^\circ = 10.1$
6	4.2	$4.2/100.1 \times 360^\circ = 15.1$
7	9.8	$9.8/100.1 \times 360^\circ = 35.2$
8	14.7	$14.7/100.1 \times 360^\circ = 52.9$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

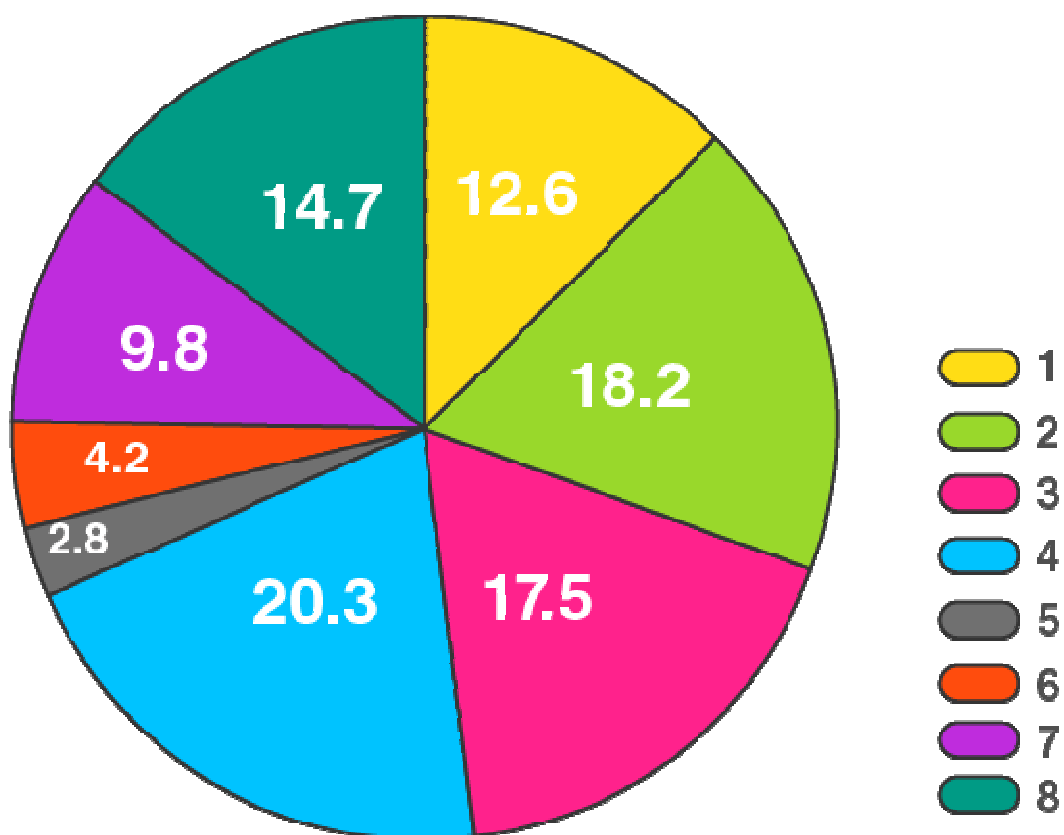
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



16. Following is the break up of the expenditure of a family on different items of consumption:

Items	Food	Clothing	Rent	Education	Fuel etc.	Medicine	Miscellaneous
Expenditure (in Rs)	1600	200	600	150	100	80	270

Draw a pie-diagram to represent the above data.

**Solution:**

Here, total expenditure = 3000 Rs

So,

The central angle =  $(\text{component value}/3000) \times 360^\circ$

The central angle for each activity will be calculated as follows

Items	Expenditure (in Rs)	Central angle
Food	1600	$1600/3000 \times 360^\circ = 192$

Clothing	200	$200/3000 \times 360^\circ = 24$
Rent	600	$600/3000 \times 360^\circ = 72$
Education	150	$150/3000 \times 360^\circ = 18$
Fuel	100	$100/3000 \times 360^\circ = 12$
Medicine	80	$80/3000 \times 360^\circ = 9.6$
Miscellaneous	270	$270/3000 \times 360^\circ = 32.4$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

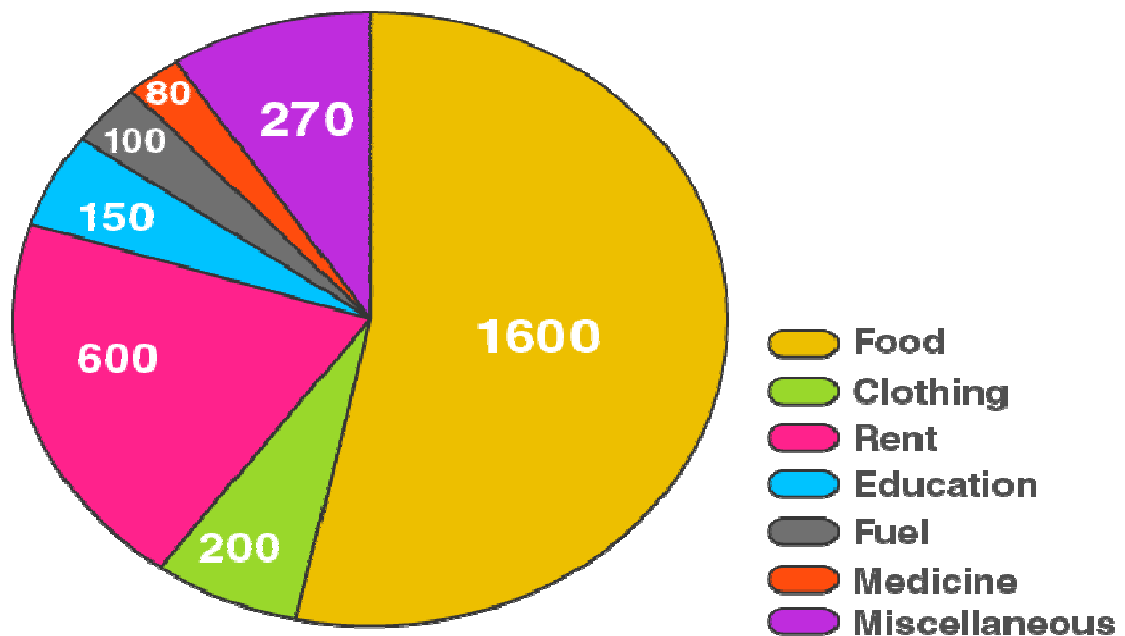
Step 1: Draw the circle of an appropriate radius.

Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.



17. Draw a pie diagram for the following data of the investment pattern in a five years plan:

<b>Agriculture</b>	<b>Irrigation and Power</b>	<b>Small Industries</b>	<b>Transport</b>	<b>Social service</b>	<b>Miscellaneous</b>
<b>14%</b>	<b>16%</b>	<b>29%</b>	<b>17%</b>	<b>16%</b>	<b>8%</b>

**Solution:**

Here, total investment = 100%

So,

The central angle = (component value/100) × 360°

The central angle for each activity will be calculated as follows

Data	Investment	Central angle
Agriculture	14%	$14/100 \times 360^\circ = 50.4$
Irrigation and Power	16%	$16/100 \times 360^\circ = 57.6$
Small Industries	29%	$29/100 \times 360^\circ = 104.4$
Transport	17%	$17/100 \times 360^\circ = 61.2$
Social service	16%	$16/100 \times 360^\circ = 57.6$
Miscellaneous	8%	$8/100 \times 360^\circ = 28.8$

Now, the pie-chart can be constructed by using the given data.

Steps to construct:

Step 1: Draw the circle of an appropriate radius.

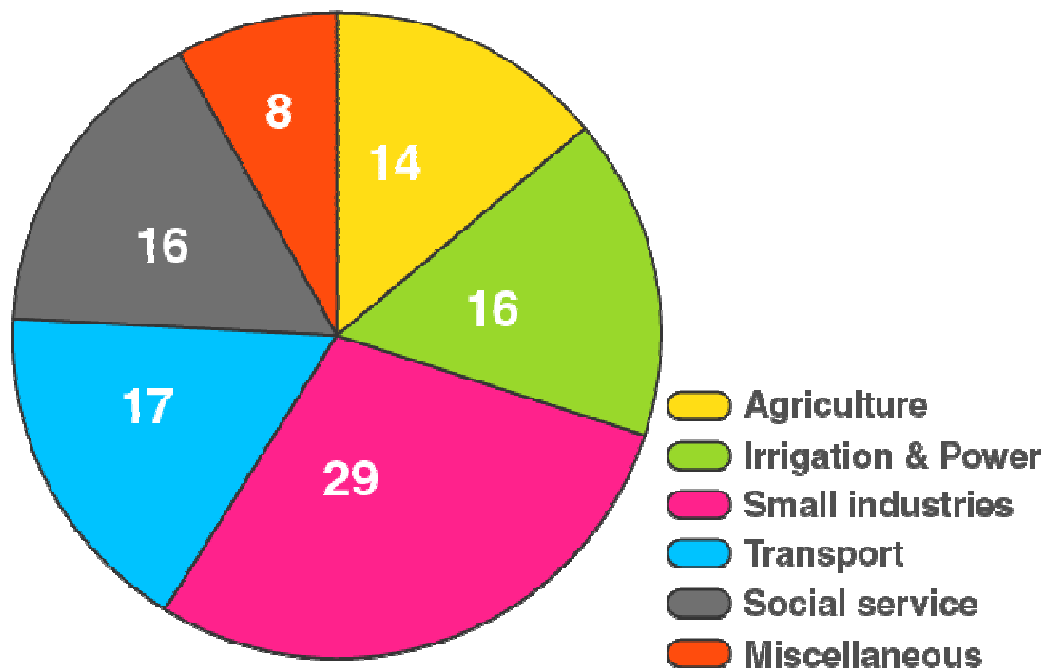
Step 2: Draw a vertical radius anywhere inside the circle.

Step 3: Choose the largest central angle. Construct a sector of central angle, whose one radius coincides with the radius drawn in step 2 and the other radius is in clockwise direction to the vertical radius.

Step 4: Construct other sectors representing other values in clockwise direction in descending order of magnitudes of their central angles.

Step 5: Shade the sectors so obtained by different colours and label them as shown in below figure.





EXERCISE 25.2 PAGE NO: 25.21

1. The pie chart given in Fig. 25.17 represents the expenditure on different items in constructing a flat in Delhi. If the expenditure incurred on cement is Rs. 112500, find the following:

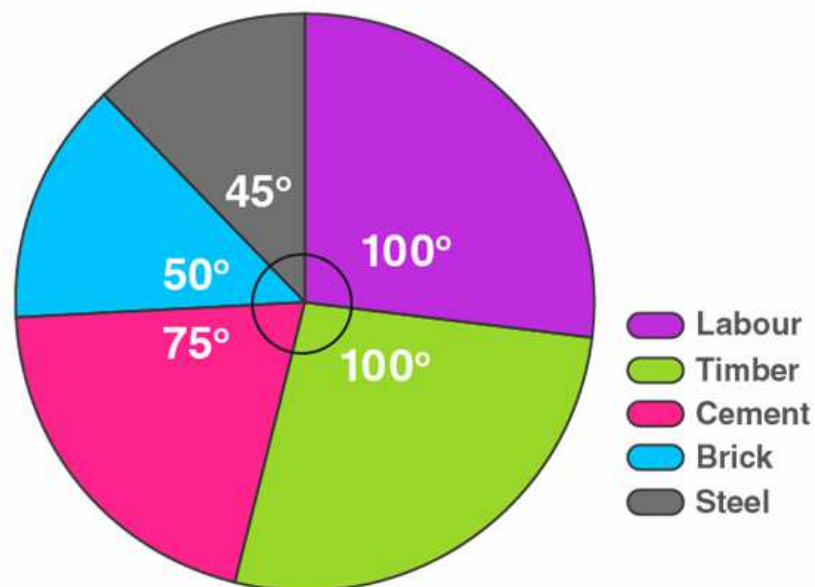


Fig. 25.17

- (i) Total cost of the flat.  
(ii) Expenditure incurred on labour.

**Solution:**

(i) By using the formula,

$$\text{Expenditure incurred on cement} = (\text{central angle} \times \text{Total cost}) / 360^\circ$$

$$\text{Total cost of the flat} = (360^\circ \times 112500) / 75^\circ = \text{Rs } 540000$$

(ii) By using the formula,

$$\text{Expenditure incurred on labour} = (\text{central angle} \times \text{Total cost}) / 360^\circ$$

$$= (100^\circ \times 540000) / 360^\circ = \text{Rs } 150000$$

2. The pie-chart given in Fig. 25.18 shows the annual agricultural production of an Indian state. If the total production of all the commodities is 81000 tonnes, find the production (in tonnes) of

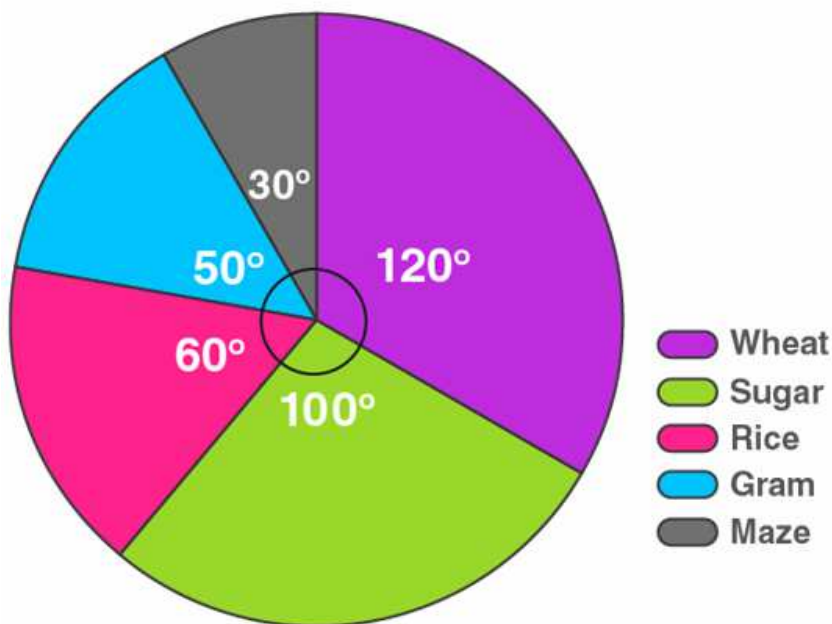


Fig. 25.18

- (i) Wheat (ii) Sugar (iii) Rice (iv) Maize (v) Gram

**Solution:**

We know that,

$$\text{Total Production} = 81000 \text{ Tonnes.}$$

So,

(i) Production of wheat = (central angle of wheat × Total production) / 360°

$$= (120^\circ \times 81000) / 360^\circ = 27000 \text{ tonnes}$$

(ii) Production of sugar = (central angle of sugar × Total production) / 360°

$$= (100^\circ \times 81000) / 360^\circ = 22500 \text{ tonnes}$$

(iii) Production of rice = (central angle of rice × Total production) / 360°

$$= (60^\circ \times 81000) / 360^\circ = 13500 \text{ tonnes}$$

(iv) Production of maize = (central angle of maize × Total production) / 360°

$$= (30^\circ \times 81000) / 360^\circ = 6750 \text{ tonnes}$$

(v) Production of gram = (central angle of gram × Total production) / 360°

$$= (50^\circ \times 81000) / 360^\circ = 11250 \text{ tonnes}$$

**3. The following pie chart shows the number of students admitted in different faculties of a college. If 1000 students are admitted in Science answer the following :**

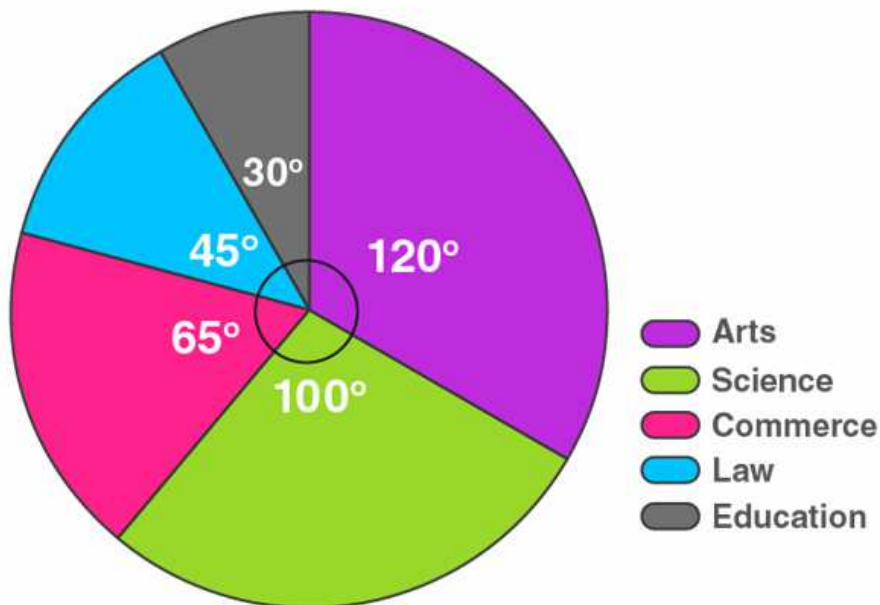


Fig. 25.19

(i) What is the total number of students?

(ii) What is the ratio of students in science and arts?

**Solution:**

(i)

Students in science = (central angle × Total students) / 360°

$$1000 = (100^\circ \times \text{Total students}) / 360^\circ$$

$$\text{Total students} = (1000 \times 360^\circ) / 100^\circ$$

$$= 3600 \text{ students}$$

∴ Total number of students are 3600.

(ii) Students in arts = (central angle of arts × Total students) / 360°

$$= (120^\circ \times 3600) / 360^\circ = 1200 \text{ students}$$

∴ Ratio of students in science and arts is 1000:1200 = 5:6

4. In Fig. 25.20, the pie-chart shows the marks obtained by a student in an examination. If the student secures 440 marks in all, calculate his marks in each of the given subjects.

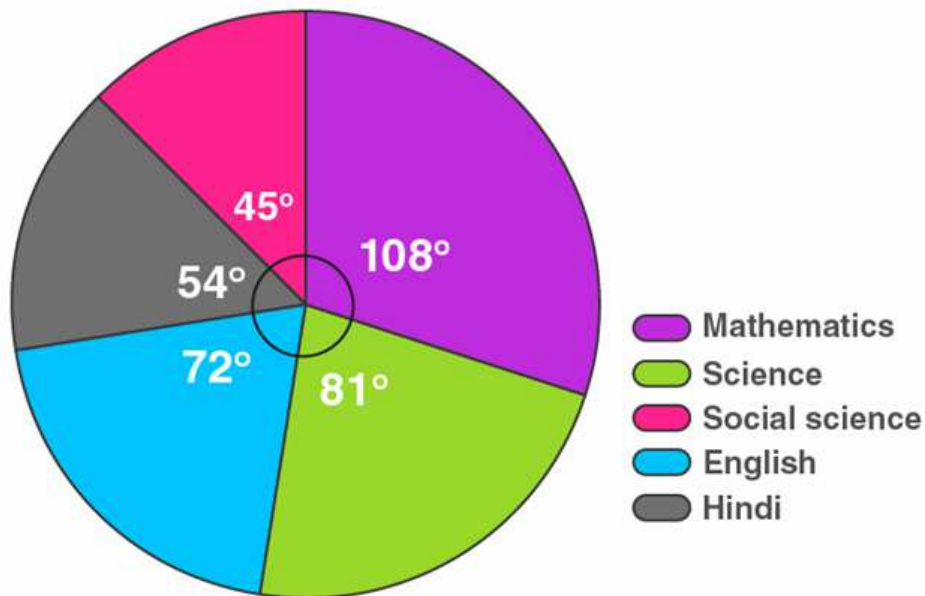


Fig. 25.20

**Solution:**

Marks secured in mathematics = (central angle of maths × Total score secured) / 360°

$$= (108 \times 440) / 360^\circ = 132 \text{ marks}$$

Marks secured in science = (central angle of science × Total score secured) / 360°

$$= (81 \times 440) / 360^\circ = 99 \text{ marks}$$

Marks secured in English = (central angle of English × Total score secured) / 360°

$$= (72 \times 440) / 360^\circ = 88 \text{ marks}$$

Marks secured in Hindi = (central angle of Hindi × Total score secured) / 360°

$$= (54 \times 440) / 360^\circ = 66 \text{ marks}$$

Marks secured in social science = (central angle of social science × Total score secured) / 360°

$$= (45 \times 440) / 360^\circ = 55 \text{ marks}$$

Subject	Mathematics	Science	English	Hindi	Social Science
---------	-------------	---------	---------	-------	----------------

Marks secured	132	99	88	66	55
---------------	-----	----	----	----	----

5. In Fig. 25.21, the pie chart shows the marks obtained by a student in various subjects. If the student scored 135 marks in mathematics, find the total marks in all the subjects. Also, find his score in individual subjects.

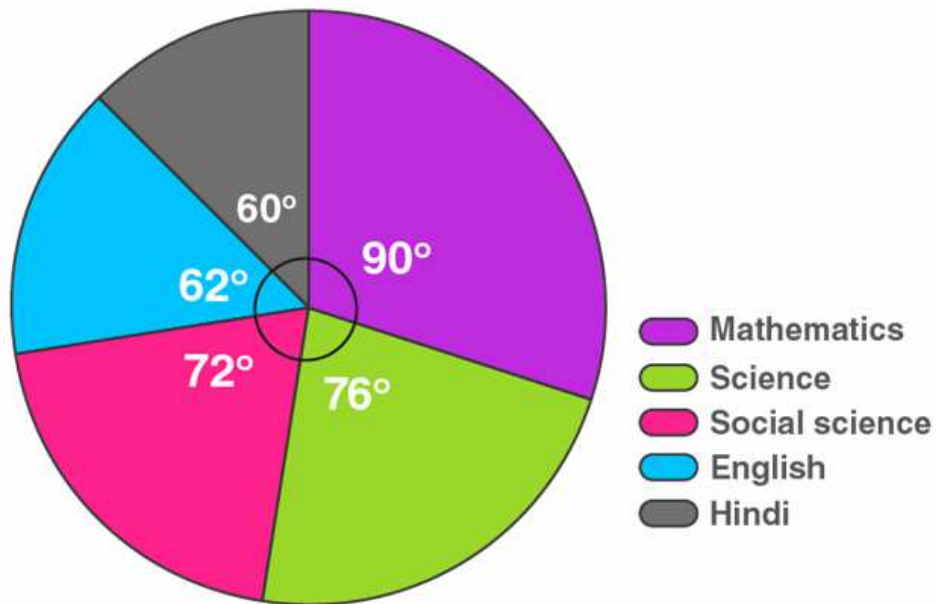


Fig. 25.21

**Solution:**

Let us calculate the total marks.

So,

$$\text{Marks scored in mathematics} = (\text{central angle of maths} \times \text{Total marks}) / 360^\circ$$

$$135 = (90 \times \text{Total marks}) / 360^\circ$$

$$\text{Total marks} = (135 \times 360) / 90$$

$$= 540 \text{ marks}$$

Now,

$$\text{Marks scored in Hindi} = (\text{central angle of Hindi} \times \text{Total marks}) / 360^\circ$$

$$= (60 \times 540) / 360^\circ$$

$$= 90 \text{ marks}$$

$$\text{Marks scored in Science} = (\text{central angle of Science} \times \text{Total marks}) / 360^\circ$$

$$= (76 \times 540) / 360^\circ$$

$$= 114 \text{ marks}$$

$$\text{Marks scored in Social science} = (\text{central angle of Social science} \times \text{Total marks}) / 360^\circ$$

$$= (72 \times 540) / 360^\circ$$

= 108 marks

Marks scored in English = (central angle of English  $\times$  Total marks) /  $360^\circ$

=  $(62 \times 540) / 360^\circ$

= 93 marks

Subject	Mathematics	Science	Social science	English	Hindi
Marks secured	135	114	108	93	90

6. The following pie chart shows the monthly expenditure of Shikha on various items. If she spends Rs 16000 per month, answer the following questions:

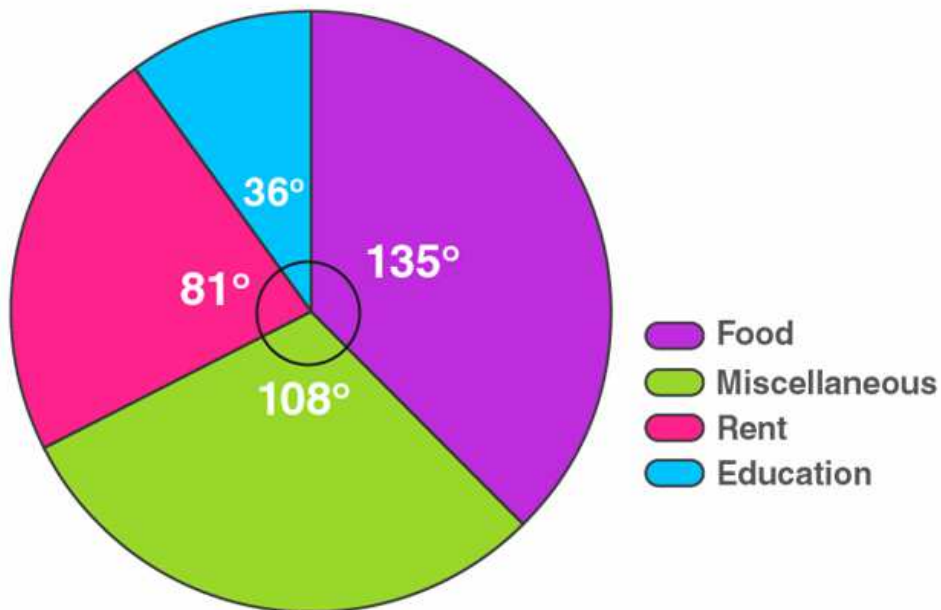


Fig. 25.22

(i) How much does she spend on rent?

(ii) How much does she spend on education?

(iii) What is the ratio of expenses on food and rent?

**Solution:**

(i) Money spent on rent = (central angle of rent  $\times$  Total money spent) /  $360^\circ$

=  $(81 \times 16000) / 360^\circ$

= Rs 3600

(ii) Money spent on education = (central angle of education  $\times$  Total money spent) /  $360^\circ$

=  $(36 \times 16000) / 360^\circ$

= Rs 1600

(iii) Money spent on food = (central angle of food  $\times$  Total money spent) /  $360^\circ$

$$= (135 \times 16000) / 360^\circ$$

$$= \text{Rs } 6000$$

Ratio of expenses on food and rent is  $\text{Rs } 6000 / \text{Rs } 3600 = 5/3$

$$\text{Ratio} = 5:3$$

7. The pie chart (as shown in the figure 25.23) represents the amount spent on different sports by a sports club in a year. If the total money spent by the club on sports is Rs 108000, find the amount spent on each sport.

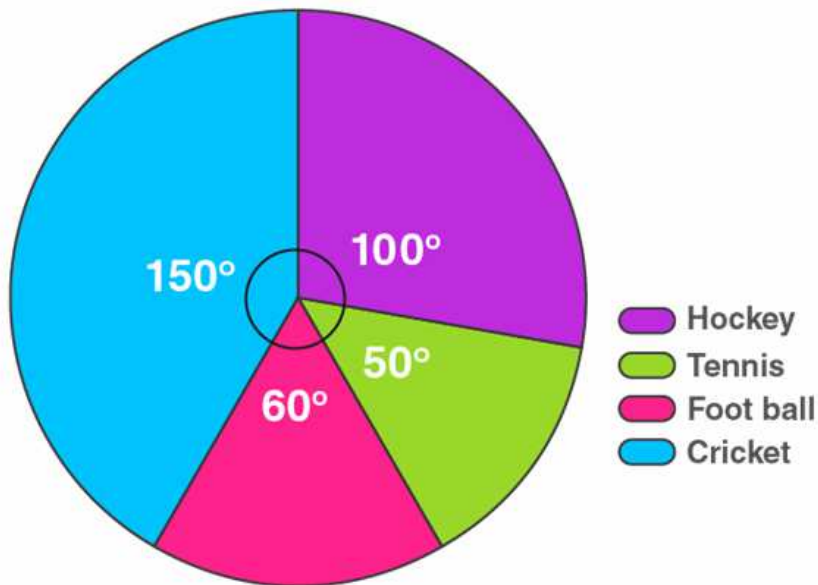


Fig. 25.23

**Solution:**

$$\text{Money spent on cricket} = (\text{central angle of cricket} \times \text{Total money spent}) / 360^\circ$$

$$= (150 \times 108000) / 360^\circ$$

$$= \text{Rs } 45000$$

$$\text{Money spent on football} = (\text{central angle of football} \times \text{Total money spent}) / 360^\circ$$

$$= (60 \times 108000) / 360^\circ$$

$$= \text{Rs } 18000$$

$$\text{Money spent on tennis} = (\text{central angle of tennis} \times \text{Total money spent}) / 360^\circ$$

$$= (50 \times 108000) / 360^\circ$$

$$= \text{Rs } 15000$$

$$\text{Money spent on hockey} = (\text{central angle of hockey} \times \text{Total money spent}) / 360^\circ$$

$$= (100 \times 108000) / 360^\circ$$

$$= \text{Rs } 30000$$