

5. Number of children visiting sports club for different activities has the following record :

Activities	No. of children
Gymnastics	120
Aerobics	100
Swimming	150
Skating	240
Table tennis	110

Draw a pie chart to represent the above data.

Solution:

$$\begin{aligned}
 \text{Total number of children} &= 120 + 100 + 150 + 240 + 110 \\
 &= 720
 \end{aligned}$$

$$\text{Central angle for Gymnastics} = \left(\frac{120}{720} \times 360 \right)^\circ$$

$$= 60^\circ$$

$$\text{Central angle for Aerobics} = \left(\frac{100}{720} \times 360 \right)^\circ$$

$$= 50^\circ$$

$$\text{Central angle for swimming} = \left(\frac{150}{720} \times 360 \right)^\circ$$

$$= 75^\circ$$

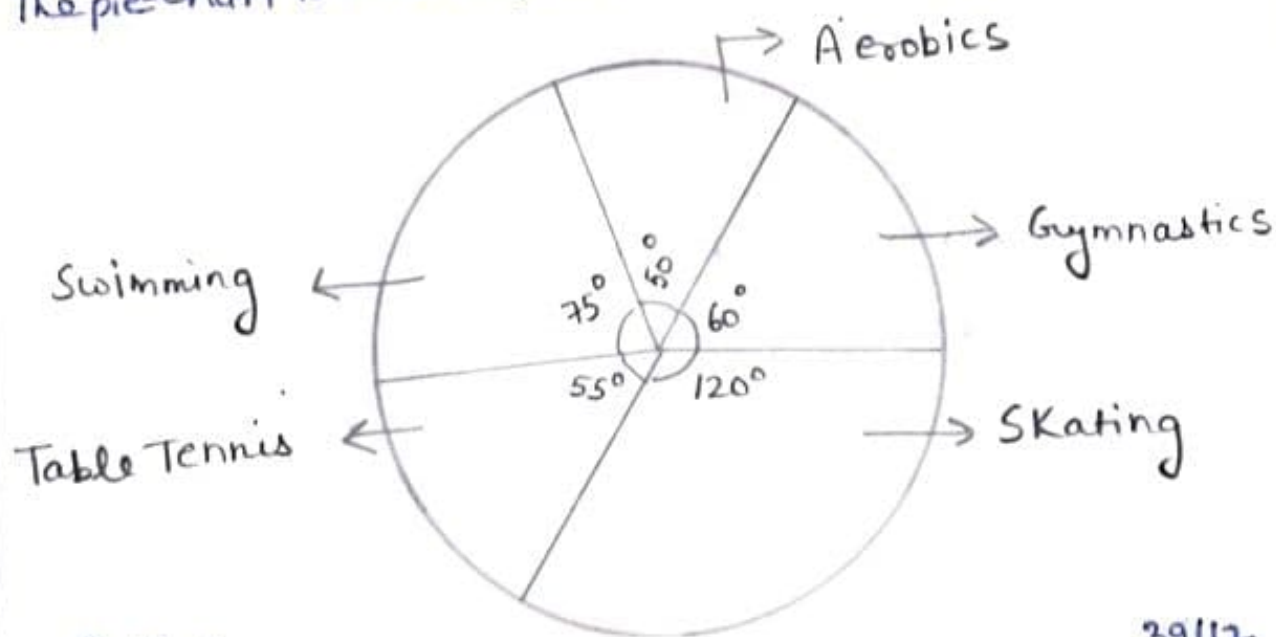
$$\text{Central angle for Skating} = \left(\frac{240}{720} \times 360 \right)^\circ$$

$$= 120^\circ$$

$$\text{Central angle for table tennis} = \left(\frac{110}{720} \times 360 \right)^\circ$$

$$= 55^\circ$$

The pie-chart is shown below:



6. 180 students passed class XIIth of CBSE examination. Out of them number of students wishing to join different streams are as follows :

Stream	Number of students
Medical	35
Engineering	50
Law	20
Commerce	45
Teaching	30

Represent the data by a pie chart.

Solution:

Total number of students

$$= 35 + 50 + 20 + 45 + 30 = 180$$

Central angle for Medical stream

$$= \left(\frac{35}{180} \times 360 \right)^\circ = 70^\circ$$

Central angle for Engineering stream

$$= \left(\frac{50}{180} \times 360 \right)^\circ = 100^\circ$$

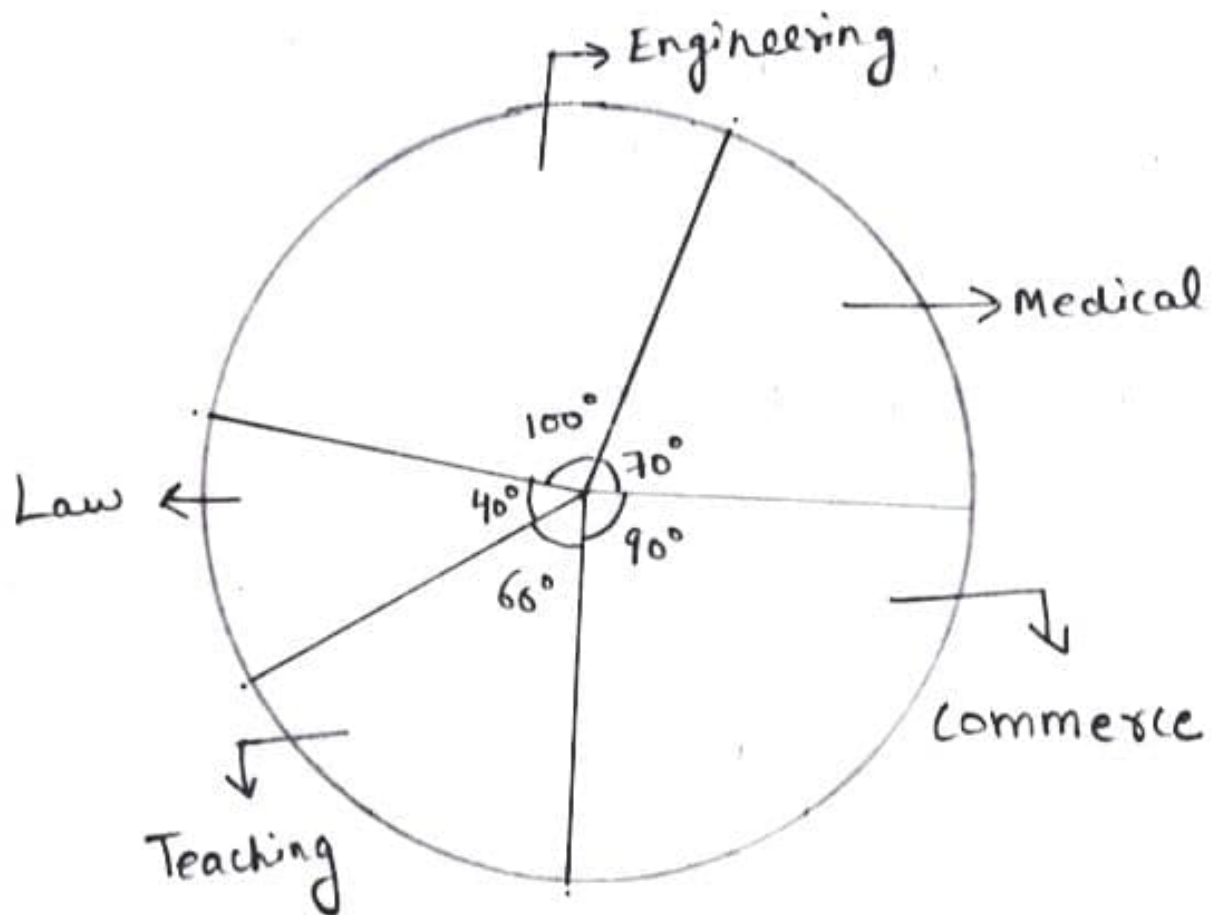
Central angle for Law stream

$$= \left(\frac{20}{180} \times 360 \right)^\circ = 40^\circ$$

Central angle for Commerce Stream
 $= \left(\frac{45}{180} \times 360 \right)^\circ = 90^\circ$

Central angle for Teaching stream
 $= \left(\frac{30}{180} \times 360 \right)^\circ = 60^\circ$

The pie chart is shown below:



7. A survey regarding number of children watching different types of programmes is given in a table below :

Type of T.V Programme	No. of children
Action	10
Comedy	15
Drama	8
Science fiction	7
Sports	5

Present the data by a pie chart.

Solution:

Total number of children

$$= 10 + 15 + 8 + 7 + 5 = 45$$

$$\begin{aligned} \text{Central angle for Action} &= \left(\frac{10}{45} \times 360 \right)^\circ \\ &= 80^\circ \end{aligned}$$

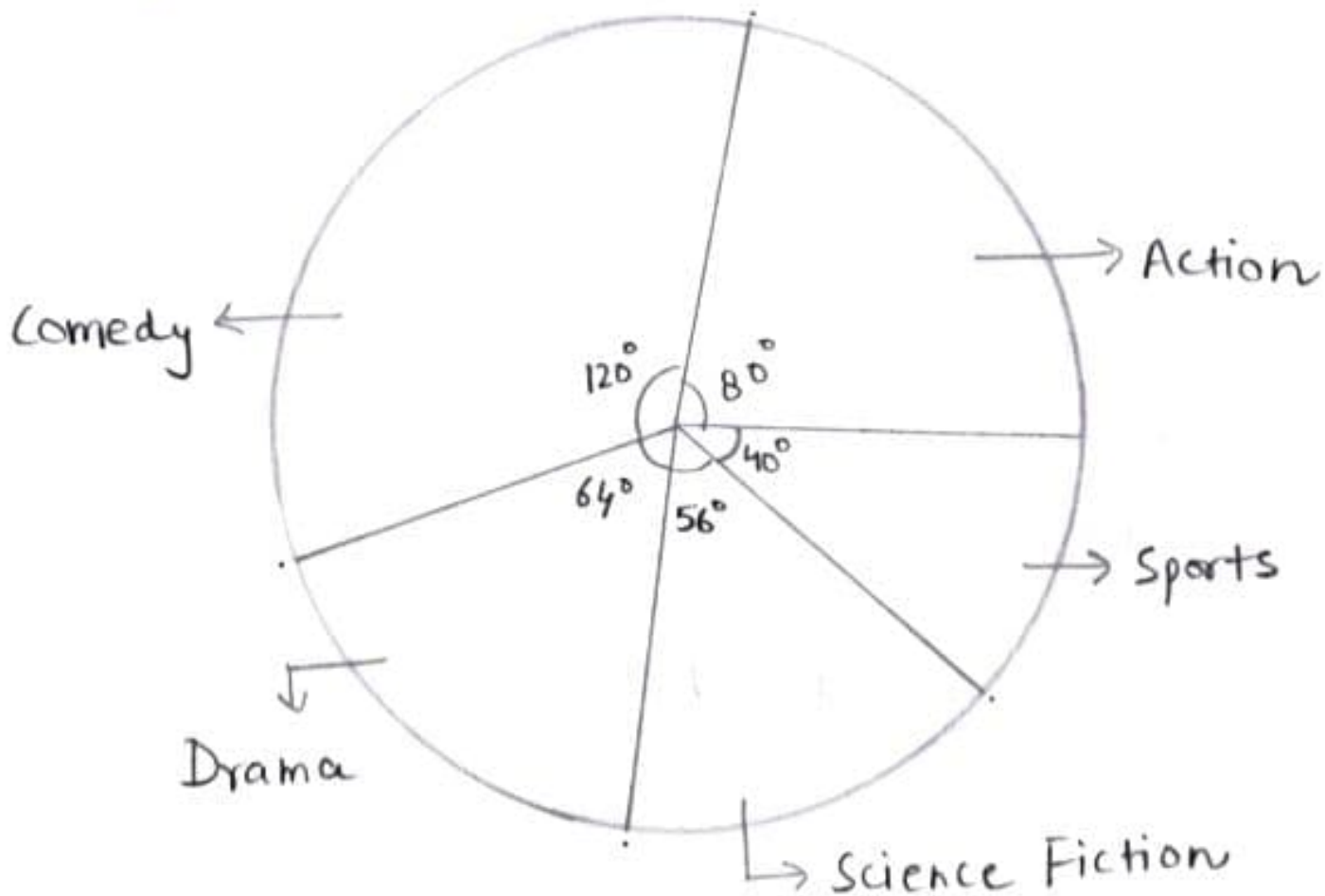
$$\begin{aligned} \text{Central angle for Comedy} &= \left(\frac{15}{45} \times 360 \right)^\circ \\ &= 120^\circ \end{aligned}$$

$$\begin{aligned} \text{Central angle for Drama} &= \left(\frac{8}{45} \times 360 \right)^\circ \\ &= 64^\circ \end{aligned}$$

$$\begin{aligned} \text{Central angle for science fiction} &= \left(\frac{7}{45} \times 360 \right)^\circ \\ &= 56^\circ \end{aligned}$$

$$\begin{aligned} \text{Central angle for sports} &= \left(\frac{5}{45} \times 360 \right)^\circ \\ &= 40^\circ \end{aligned}$$

The pie chart is shown below:



8. During Dussehra holiday children of VI, VII and VIII were going for a trip. Number of students opting for different places is given below. If a bus accommodates not more than 50 students, how many buses are needed? Complete the table and make a pie chart for the number of buses going to Agra, Goa, Shimla, Nainital, and Mussorie.

Place of visit	No. of students	No. of buses
Agra	285	-
Goa	92	-
Shimla	148	-
Nainital	140	-
Mussorie	190	-

Solution:

Total number of students

$$= 285 + 92 + 148 + 140 + 190 = 855$$

Since 50 students can accommodate in 1 bus.

\therefore 855 students will be accommodate

$$855 \div 50 = \frac{850}{50} + 5 = 17 + 1 = 18 \text{ buses.}$$

Place of visit	No. of students	No. of buses
Agra	285	6
Goa	92	2
Shimla	148	3
Nainital	140	3
Mussorie	190	4
Total		18

For the required number of buses:—

$$\text{Central angle for Agra} = \left(\frac{6}{18} \times 360\right)^\circ = 120^\circ$$

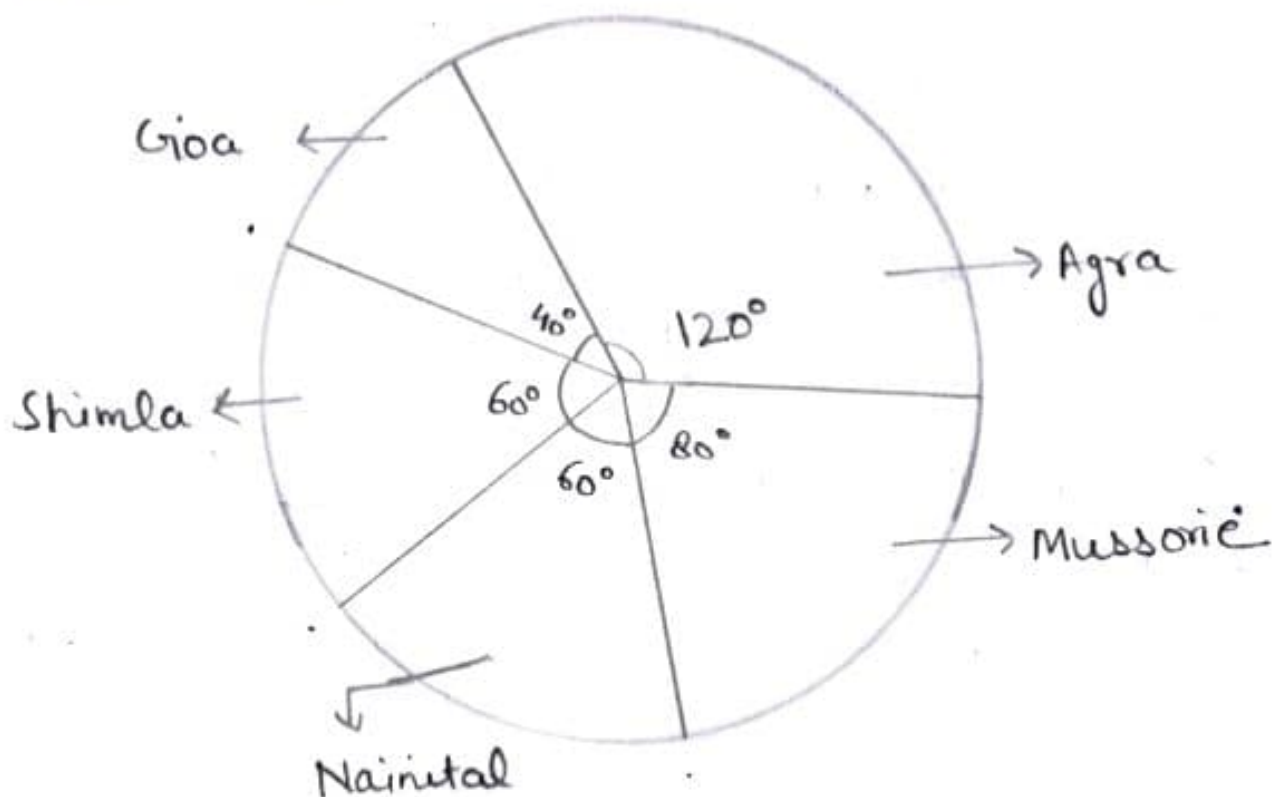
$$\text{Central angle for Goa} = \left(\frac{2}{18} \times 360\right)^\circ = 40^\circ$$

$$\text{Central angle for Shimla} = \left(\frac{3}{18} \times 360\right)^\circ = 60^\circ$$

$$\text{Central angle for Nainital} = \left(\frac{3}{18} \times 360\right)^\circ = 60^\circ$$

$$\text{Central angle for Mussoorie} = \left(\frac{4}{18} \times 360\right)^\circ = 80^\circ$$

The pie chart is shown below:





MULTIPLE CHOICE QUESTIONS.

Tick (✓) the correct option :

1. The number of times a particular entry occurs in a set of data is known as its :
(a) range (b) class-size (c) frequency (d) class-interval

Solution (c):

The number of times a particular entry occurs in a set of data is known as its frequency.

2. The difference between the highest and the lowest values of the observations in a given set of data is called its :
(a) range (b) frequency (c) class-size (d) class-interval

Solution (a):

The difference between the highest and the lowest values of the observations in a given set of data is called its range.

3. The difference between upper and lower class limits of a group is called :
(a) class-limit (b) class-size (c) class-interval (d) class-mark

Solution (b):

The difference between the upper and lower class limits of a group is called class-size.

4. The mid-value of a class-interval is called its :
(a) class-limit (b) class-mark (c) class-width (d) range

Solution (b):

The mid-value of each class interval is called its class mark.

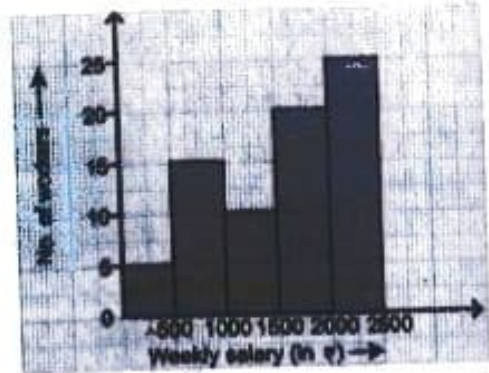
5. Each group of a grouped frequency distribution is called :
(a) class-limit (b) class-size (c) class-interval (d) class-mark

Solution (c):

Each group of a grouped frequency distribution is called class-interval.

6. In the given histogram, the number of workers earning ₹ 1500 to ₹ 2000 in a week is :

(a) 10 (b) 15
(c) 20 (d) 25

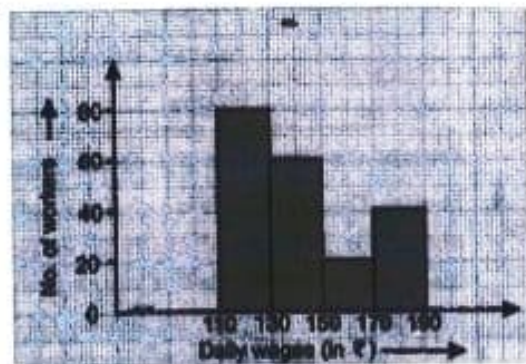


Solution (c)

From the graph the number of workers whose earnings ₹1500 to ₹2000 in a week is 20.

7. The given histogram represents the daily wages of the workers in a factory. The number of workers who earn ₹ 150 or more in a day, is :

(a) 40 (b) 60
(c) 80 (d) 100

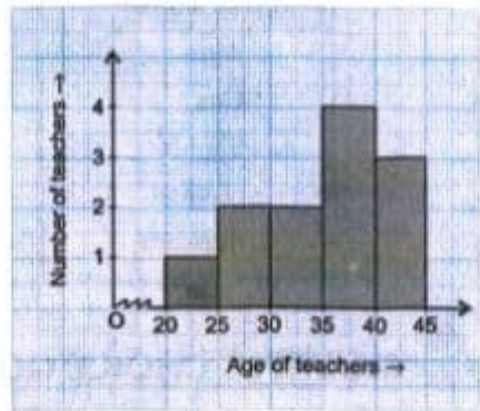


Solution (b):

The number of workers who earn ₹150 or more in a day is $20 + 40 = 60$.

8. In the given histogram, the number of teachers whose age is between 35 - 40 is :

- (a) 2 (b) 4
(c) 3 (d) 7

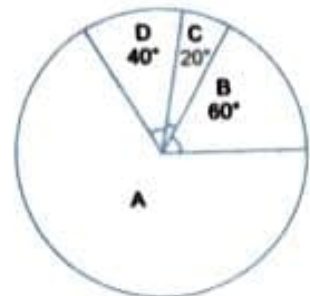


Solution (b):

The number of teachers whose age is between 35-40 is 4.

9. In the given pie chart, what fraction of the circle is occupied by sector A?

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$
(c) $\frac{2}{3}$ (d) $\frac{3}{5}$



Solution (c):

Fraction occupied by sector B, C, D

$$= \frac{40^\circ + 20^\circ + 60^\circ}{360^\circ} = \frac{120^\circ}{360^\circ} = \frac{1}{3}$$

$$\therefore \text{Fraction occupied by sector A} = 1 - \frac{1}{3} = \frac{2}{3}$$

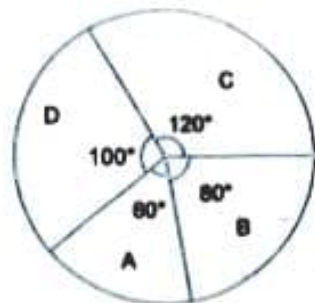
10. In the given pie chart, what per cent of the circle is occupied by sector C?

(a) $33\frac{1}{3}\%$

(b) $22\frac{2}{9}\%$

(c) $16\frac{2}{3}\%$

(d) $27\frac{7}{9}\%$



Solution (a):

Fraction part of a circle occupied by sector

$$C = \frac{120^\circ}{360^\circ} = \frac{1}{3}$$

$$\text{Required percent of a circle} = \frac{1}{3} \times 100\%$$

$$= \frac{100}{3}\%$$

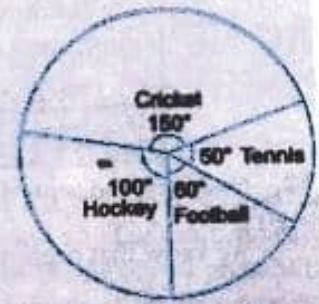
$$= 33\frac{1}{3}\%$$



VALUE BASED QUESTIONS.

The pie chart shows the amount spent on different sports by a school in a year. The total money spent by the school on sports is ₹ 1,44,000.

- What is the amount spent on cricket?
- How much more money is spent on hockey than on football?
- In which game minimum amount of money was spent?
- Find the ratio of the amount spent on tennis to that spent on football.
- What do you think, spending money in sports is justified or it is just a waste of money?



Solution:

Value of a component =

$$\text{Total value} \times \frac{\text{Central Angle of the component}}{360}$$

$$\begin{aligned}\therefore \text{Spent money on Cricket} &= ₹ 144000 \times \frac{150}{360} \\ &= ₹ 60000\end{aligned}$$

$$\begin{aligned}\text{Spent money on Tennis} &= ₹ 144000 \times \frac{50}{360} \\ &= ₹ 20,000\end{aligned}$$

$$\begin{aligned}\text{Spent money on football} &= ₹ 144000 \times \frac{60}{360} \\ &= ₹ 24000\end{aligned}$$

$$\begin{aligned}\text{Spent money on hockey} &= ₹ 144,000 \times \frac{100}{360} \\ &= ₹ 40,000\end{aligned}$$

Now

(a)

The amount spent on cricket is ₹ 60,000

(b) More money spent on hockey than

$$\text{football} = ₹ 40,000 - ₹ 24,000$$

$$= ₹ 16,000$$

(c) On Tennis, minimum amount of money was spent.

$$\begin{aligned}\text{(d) Required Ratio} &= \frac{\text{Money spent on tennis}}{\text{Money spent on football}}\end{aligned}$$

$$= \frac{₹ 20,000}{₹ 24,000} = \frac{5}{6} = 5:6$$