

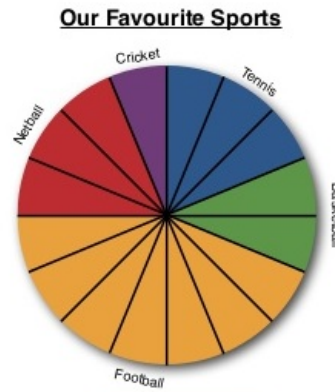
# Pie Charts

## Pie Chart

Pie charts are used to **compare information**. A pie chart looks like a pie that is split into slices.

In this **survey**, 16 people chose their favourite sport. The pie is split into 16 sections and the sections are coloured to show the **results**.

Look at the pie chart to compare the results.  
Which was the most popular sport?  
Which was the least popular?



Tennis	3
Basketball	2
Football	7
Netball	3
Cricket	1

In pie charts, from geometry, we know that the area the sector of a circle must be proportional to the corresponding value of the component.

Since the sum of all the central angle is  $360^\circ$ , we have Central angle of the component  
 $= \left\{ \frac{\text{value of the component}}{\text{Total value}} \times 360 \right\}^\circ$ .

$$\left( \frac{\text{Value of the component}}{\text{Total value}} \times 360 \right)^\circ$$

Total of Pie Charts =  $360^\circ$

If you need to make any angle into percentage then =

$$\left( \frac{\text{Angle Value}}{360} \times 100 \right)\%$$

**Pie Charts RS Aggarwal Class 8 Solutions Ex 23A**

Q1. **Answer :**

Total money = Rs 14400

Central angle of each component =  $\left( \frac{\text{value of each component}}{\text{sum of the values of all components}} \times 360 \right)^\circ$

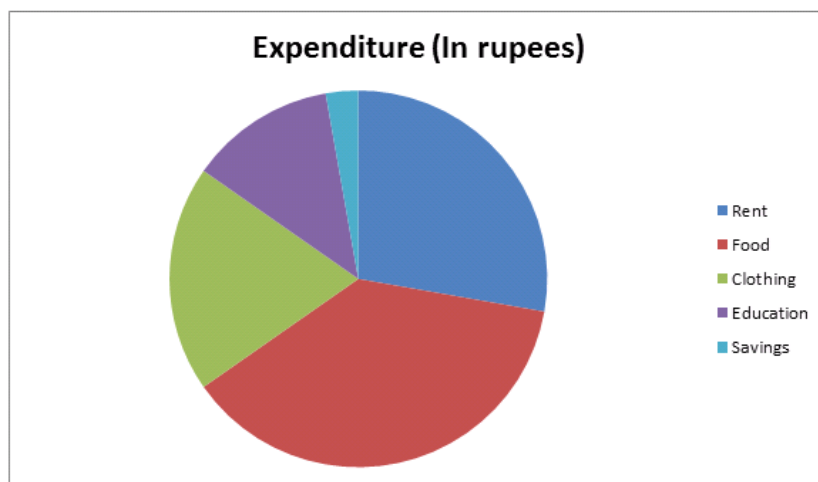
**Calculation of central angles**

Item	Expenditure (in rupees)	Central angle
Rent	4000	$100^\circ$
Food	5400	$135^\circ$
Clothing	2800	$70^\circ$
Education	1800	$45^\circ$
Savings	400	$10^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
  2. Draw a horizontal radius of this circle.
  3. Draw sectors whose central angles are  $100^\circ$ ,  $135^\circ$ ,  $70^\circ$ ,  $45^\circ$  and  $10^\circ$ .
  4. Shade the sectors so obtained differently and label each one of them.
- Thus, we obtain the required pie chart as shown in the figure below.



Q2.

**Answer :**

Total number of creatures = 900

Central angle of each component =  $\left( \frac{\text{number of creatures in each type}}{\text{total number of creatures}} \times 360 \right)^\circ$

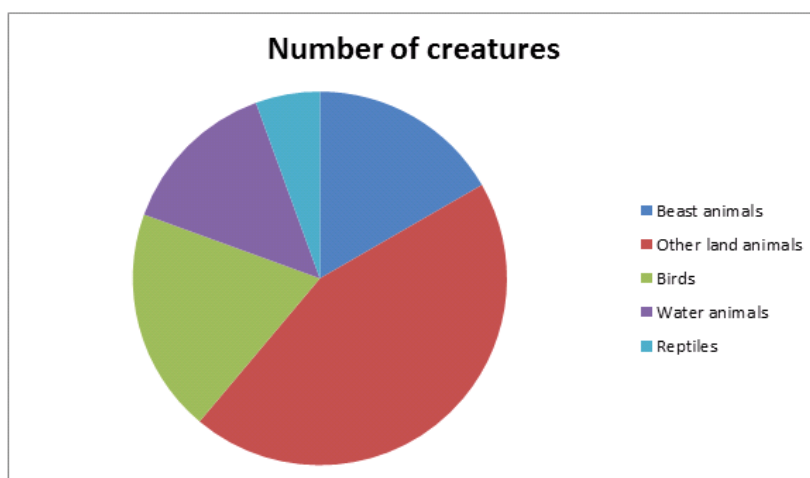
**Calculation of central angles**

Creatures	Number of creatures	Central angle
Beast animals	150	60°
Other land animals	400	160°
Birds	175	70°
Water animals	125	50°
Reptiles	50	20°

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
  2. Draw a horizontal radius of this circle.
  3. Draw sectors whose central angles are 60°, 160°, 70°, 50° and 20°.
  4. Shade the sectors so obtained differently and label each one of them.
- Thus, we obtain the required pie chart as shown in the figure below.



Q3.

Answer :

Total number of students = 1260

Central angle of each component =  $\left( \frac{\text{number of students using that mode}}{\text{total number of students}} \times 360 \right)^\circ$

**Calculation of central angles**

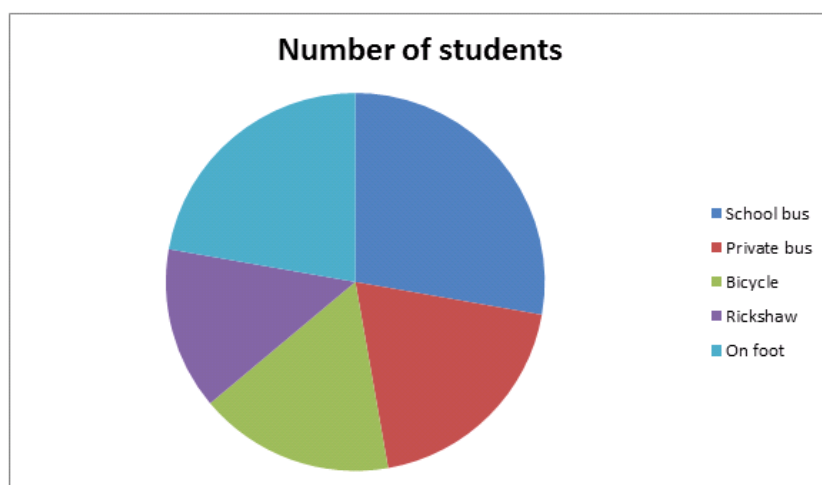
Mode of transport	Number of students	Central angle
School bus	350	100°
Private bus	245	70°
Bicycle	210	60°
Rickshaw	175	50°
On foot	280	80°

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of this circle.
3. Draw sectors whose central angles are 100°, 70°, 60°, 50° and 80°.
4. Shade the sectors so obtained differently and label each one of them.

Thus, we obtain the required pie chart as shown in the figure below.



Q4.

**Answer :**

Total number of hours = 24

Central angle of each component =  $\left( \frac{\text{number of hours spent on each activity}}{\text{total number of hours}} \times 360 \right)^\circ$

**Calculation of central angles**

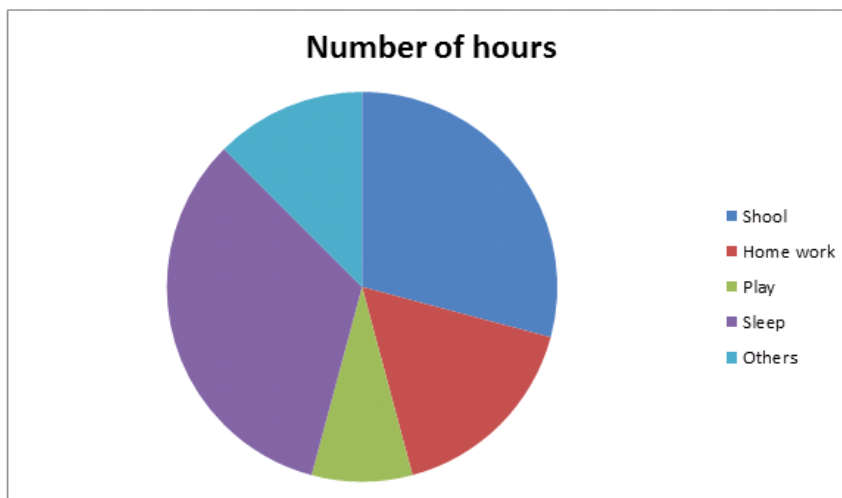
Activity	Number of hours	Central angle
School	7	$105^\circ$
Home work	4	$60^\circ$
Play	2	$30^\circ$
Sleep	8	$120^\circ$
Others	3	$45^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of this circle.
3. Draw sectors whose central angles are  $105^\circ$ ,  $60^\circ$ ,  $30^\circ$ ,  $120^\circ$  and  $45^\circ$ .
4. Shade the sectors so obtained differently and label each one of them.

Thus, we obtain the required pie chart as shown in the figure below.



Q5.

**Answer :**

Total number of workers = 1080

Central angle of each religion =  $\left( \frac{\text{number of workers in each religion}}{\text{total number of workers}} \times 360 \right)^\circ$

**Calculation of central angles**

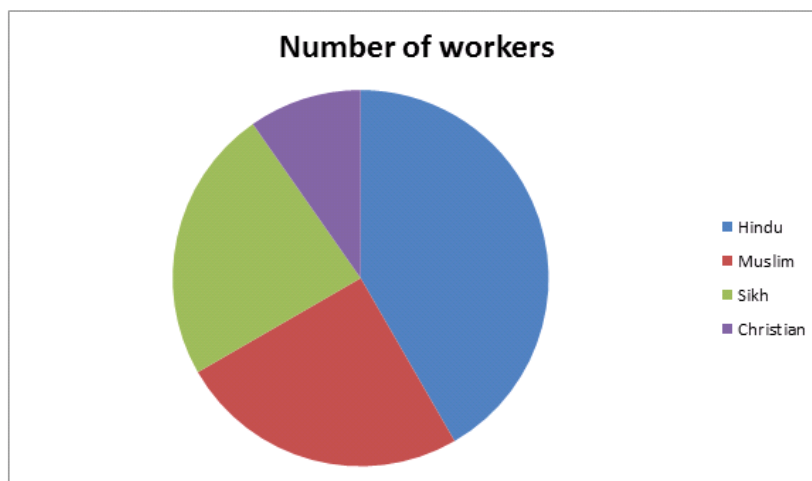
Religion	Marks obtained	Central angle
Hindu	450	$150^\circ$
Muslim	270	$90^\circ$
Sikh	255	$85^\circ$
Christian	105	$35^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of this circle.
3. Draw sectors whose central angles are  $150^\circ$ ,  $90^\circ$ ,  $85^\circ$  and  $35^\circ$ .
4. Shade the sectors so obtained differently and label each one of them.

Thus, we obtain the required pie chart as shown in the figure below.



Q6.

**Answer :**

Total marks obtained =  $(105 + 75 + 150 + 120 + 90) = 540$

Central angle of each subject =  $\left( \frac{\text{marks obtained in each subject}}{\text{total marks obtained}} \times 360 \right)^\circ$

**Calculation of central angles**

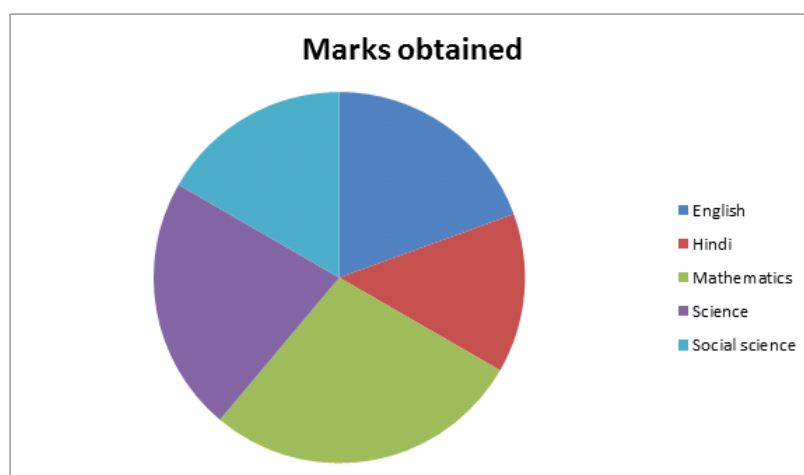
Subject	Marks obtained	Central angle
English	105	$70^\circ$
Hindi	75	$50^\circ$
Mathematics	150	$100^\circ$
Science	120	$80^\circ$
Social science	90	$60^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of this circle.
3. Draw sectors whose central angles are  $70^\circ$ ,  $50^\circ$ ,  $100^\circ$ ,  $80^\circ$  and  $60^\circ$ .
4. Shade the sectors so obtained differently and label each one of them.

Thus, we obtain the required pie chart as shown in the figure below.



Q7.

**Answer :**

Total number of fruits =  $(26 + 30 + 21 + 5 + 8) = 90$

Central angle of each fruit =  $\left( \frac{\text{number of each type of fruit}}{\text{total number of fruits}} \times 360 \right)^\circ$

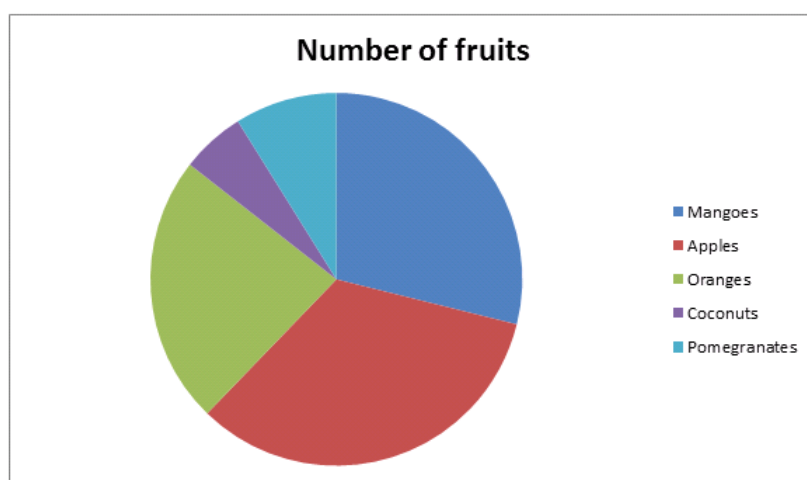
**Calculation of central angles**

Types of fruit	Number	Central angle
Mangoes	26	$104^\circ$
Apples	30	$120^\circ$
Oranges	21	$84^\circ$
Coconuts	5	$20^\circ$
Pomegranates	8	$32^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
  2. Draw a horizontal radius of the circle.
  3. Draw sectors whose central angles are  $104^\circ$ ,  $120^\circ$ ,  $84^\circ$ ,  $20^\circ$  and  $32^\circ$ .
  4. Shade the sectors so obtained differently and label each one of them.
- Thus, we obtain the required pie chart as shown in the figure below.



Q8.

**Answer :**

Total production =  $(57 + 76 + 38 + 19) = 190$

Central angle of each foodgrain =  $\left( \frac{\text{production of each foodgrain}}{\text{total production}} \times 360 \right)^\circ$

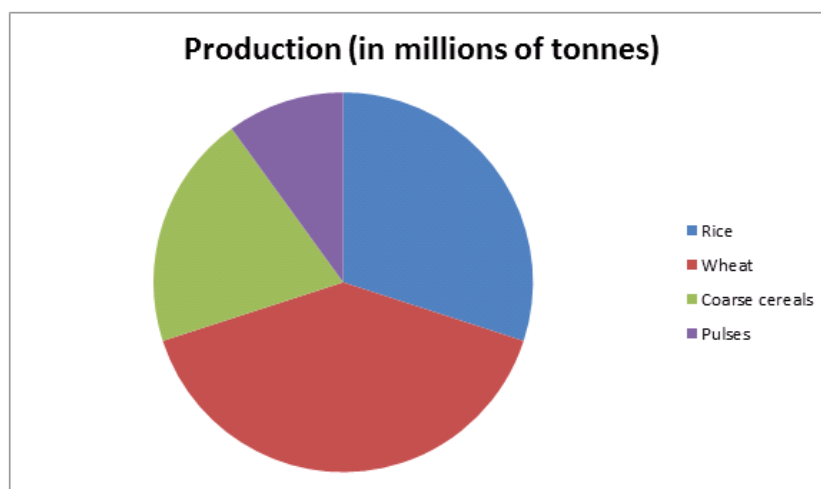
**Calculation of central angles**

Food grain	production (in millions of tonnes)	Central angle
Rice	57	$108^\circ$
Wheat	76	$144^\circ$
Coarse cereals	38	$72^\circ$
Pulses	19	$36^\circ$

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
  2. Draw a horizontal radius of the circle.
  3. Draw sectors whose central angles are  $108^\circ$ ,  $144^\circ$ ,  $72^\circ$  and  $36^\circ$ .
  4. Shade the sectors so obtained differently and label each one of them.
- Thus, we obtain the required pie chart as shown in the figure below.



Q9.

**Answer :**

Total percentage = 100

$$\text{Central angle of each category} = \left( \frac{\text{value (in \%)} \text{ of each category}}{100} \times 360 \right)^\circ$$

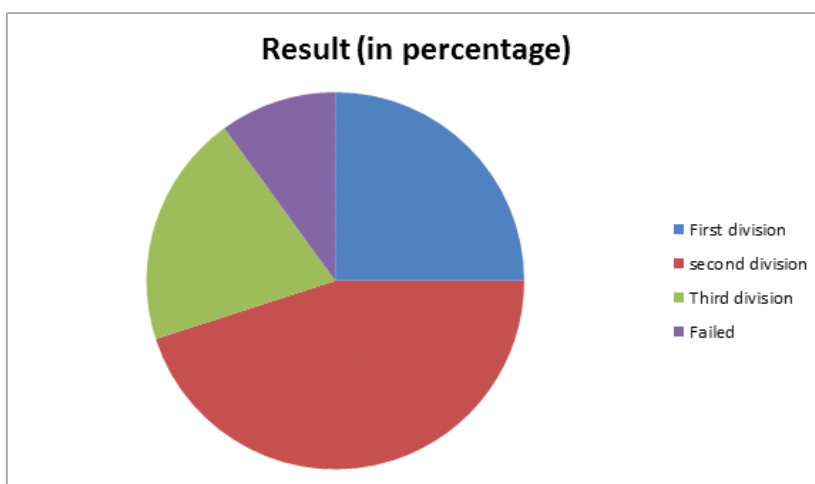
**Calculation of central angles**

Category	Result (in %)	Central angle
First division	25	90°
Second division	45	162°
Third division	20	72°
Failed	10	36°

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
  2. Draw a horizontal radius of the circle.
  3. Starting from the horizontal radius, draw sectors whose central angles are 90°, 162°, 72° and 36°.
  4. Shade the sectors so obtained differently and label each one of them.
- Thus, we obtain the required pie chart as shown in the figure below.



Q10.

**Answer :**

Total percentage = 100

$$\text{Central angle of each brand} = \left( \frac{\text{value (in \%)} \text{ of each brand}}{100} \times 360 \right)^\circ$$

**Calculation of central angles :**

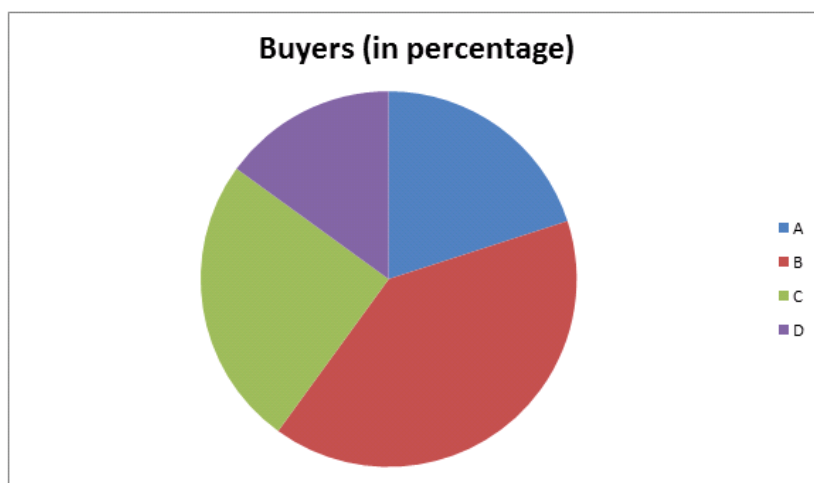
Brand	Buyers (in %)	Central angle
A	20	72°
B	40	144°
C	25	90°
D	15	54°

**Construction of pie chart**

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of the circle.
3. Draw sectors whose central angles are 72°, 144°, 90° and 54°.
4. Shade the sectors so obtained differently and label each one of them.

Thus, we obtain the required pie chart as shown in the figure below.



### Pie Charts RS Aggarwal Class 6 Solutions Ex 23B

Q01.

**Answer :**

(b)  $37\frac{1}{2}^\circ$

Central angle of the sector representing travel expenses

$$\begin{aligned} &= \left( \frac{\text{value of expenses on travel}}{\text{monthly income}} \times 360 \right)^\circ \\ &= \left( \frac{250}{2400} \times 360 \right)^\circ \\ &= 37\frac{1}{2}^\circ \end{aligned}$$

Q02.

**Answer :**

(c)  $126^\circ$

Central angle of the sector representing the sikh community

$$\begin{aligned} &= \left( \frac{\text{value (in \%)} \text{ of the sikh community}}{100} \times 360 \right)^\circ \\ &= \left( \frac{35}{100} \times 360 \right)^\circ \\ &= 126^\circ \end{aligned}$$

Q03.



**Answer :**

(a) 220

Let the required number of students be  $x$ .

Then we have :

$$\left(\frac{x}{1650} \times 360\right) = 48$$

$$\Rightarrow \frac{360x}{1650} = 48$$

$$\Rightarrow x = \left(48 \times \frac{1650}{360}\right)$$

$$\Rightarrow x = 220$$

Hence, the number of students who opted for arts stream is 220.