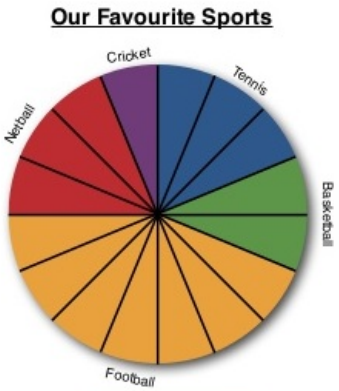
Pie Charts

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°, we have Central angle of the component
= **{(value of the component/Total value) x 360} °.**

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

Total of Pie Charts = 360°

If you need to make any angle into percentage then =

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

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

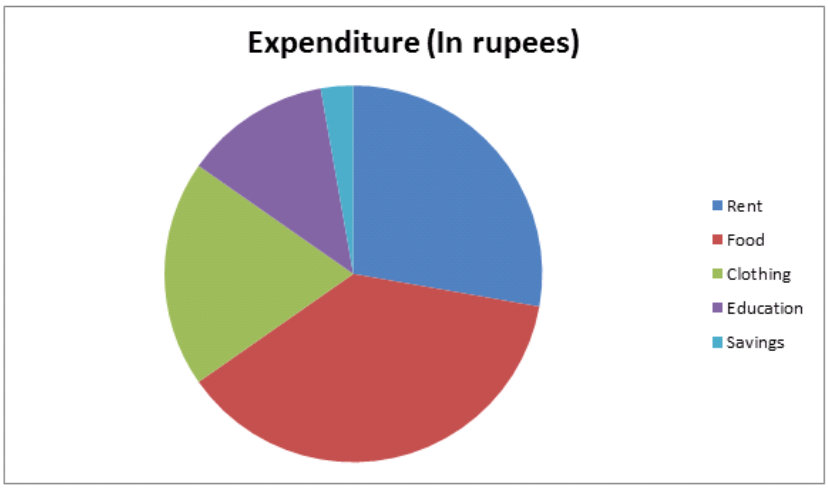
Item	Expenditure (in rupees)	Central angle
Rent	4000	100°
Food	5400	135°
Clothing	2800	70°
Education	1800	45°
Savings	400	10°

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°, 135°, 70°, 45° and 10°.
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

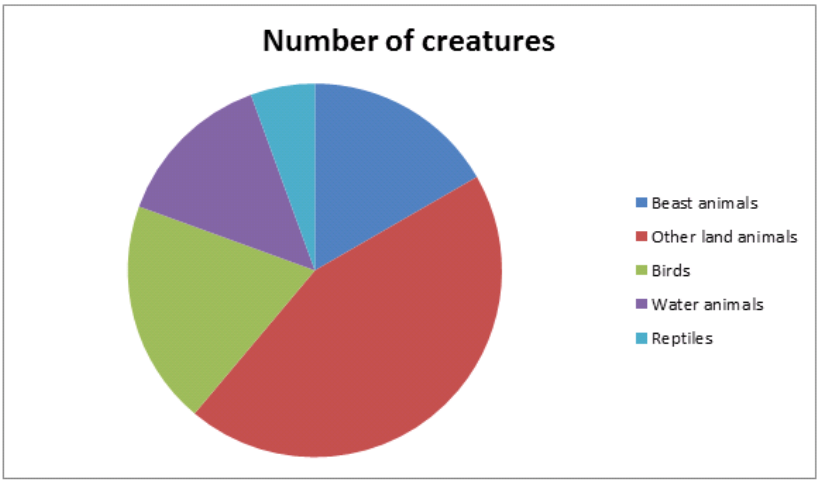
Creatures	Number of creatures	Central angle
Beast animals	150	60°
Other land animals	400	160°
Birds	175	70°
Water animals	125	50°
Reptiles	50	20°

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 :

$\text{Total number of students} = 1260$

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

Calculation of central angles

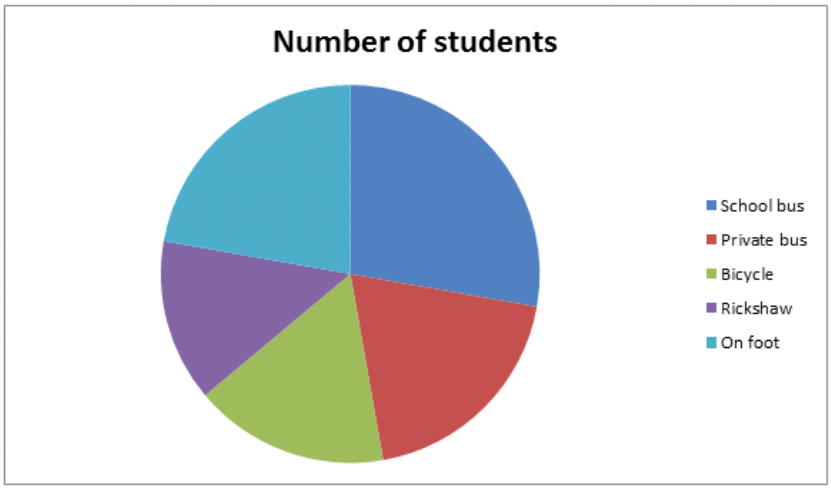
Mode of transport	Number of students	Central angle
School bus	350	100°
Private bus	245	70°
Bicycle	210	60°
Rickshaw	175	50°
On foot	280	80°

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

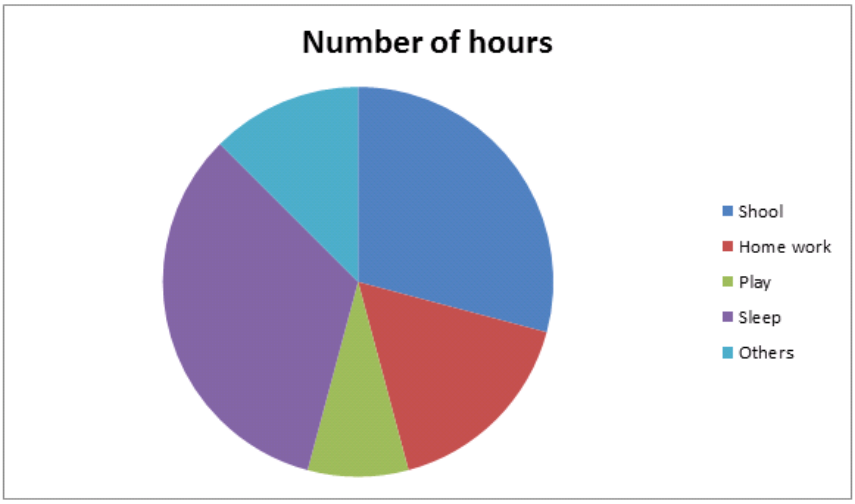
Activity	Number of hours	Central angle
School	7	105°
Home work	4	60°
Play	2	30°
Sleep	8	120°
Others	3	45°

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°, 60°, 30°, 120° and 45°.
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

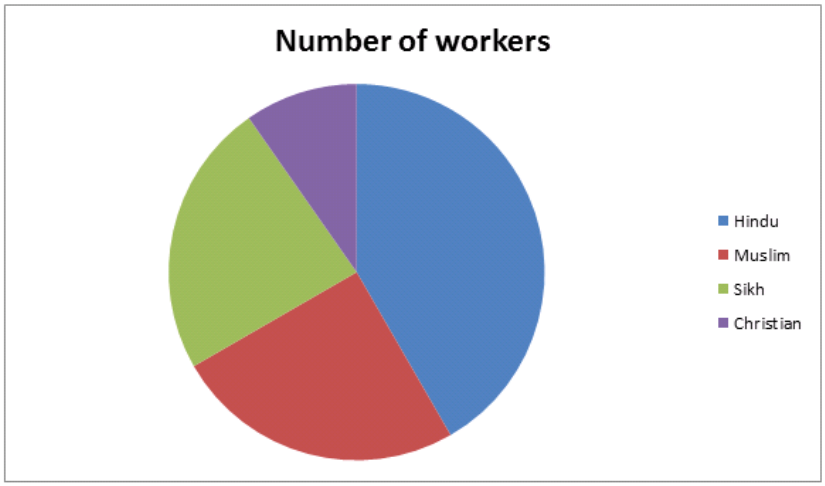
Religion	Marks obtained	Central angle
Hindu	450	150°
Muslim	270	90°
Sikh	255	85°
Christian	105	35°

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°, 90°, 85° and 35°.
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 :

$$\text{Total marks obtained} = (105 + 75 + 150 + 120 + 90) = 540$$

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

Calculation of central angles

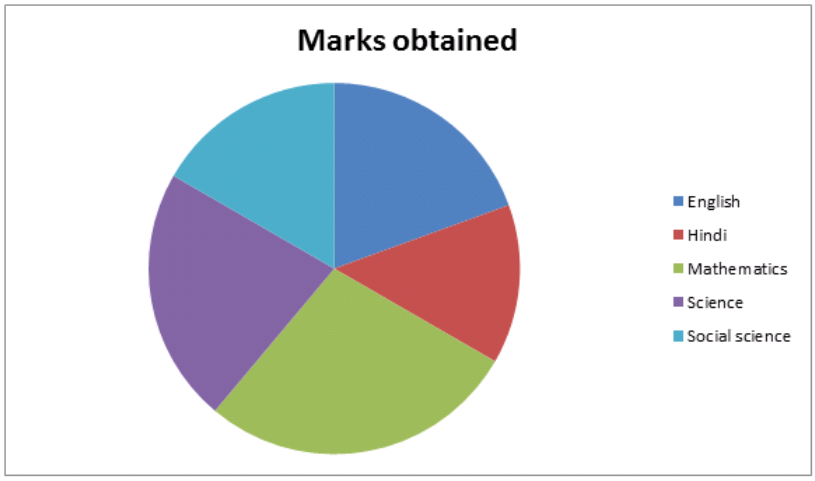
Subject	Marks obtained	Central angle
English	105	70°
Hindi	75	50°
Mathematics	150	100°
Science	120	80°
Social science	90	60°

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°, 50°, 100°, 80° and 60°.
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

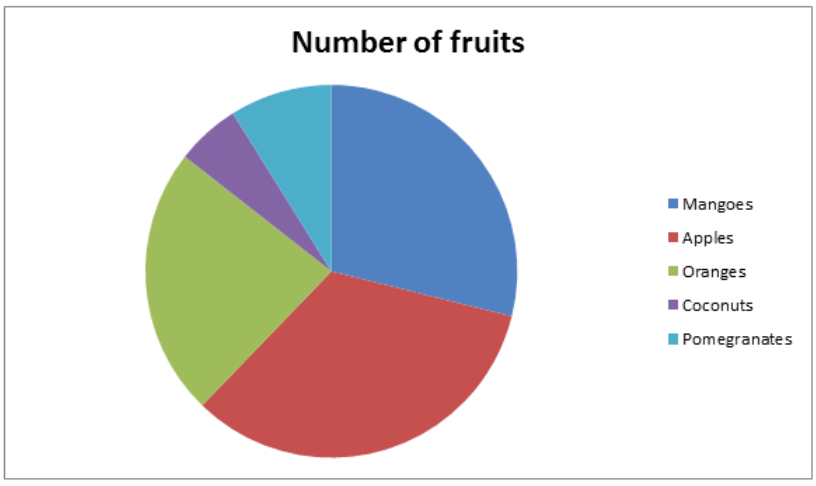
Types of fruit	Number	Central angle
Mangoes	26	104°
Apples	30	120°
Oranges	21	84°
Coconuts	5	20°
Pomegranates	8	32°

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°, 120°, 84°, 20° and 32°.
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

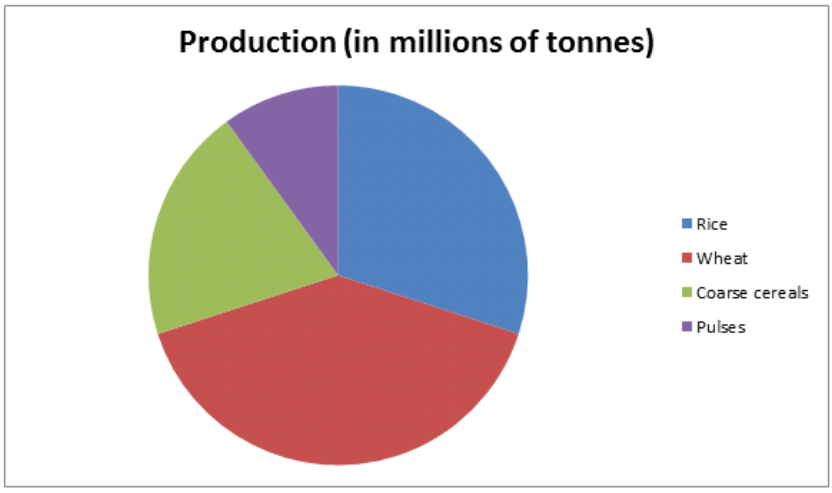
Food grain	production (in millions of tonnes)	Central angle
Rice	57	108°
Wheat	76	144°
Coarse cereals	38	72°
Pulses	19	36°

Construction of pie chart

Steps of construction :

1. Draw a circle of any convenient radius.
2. Draw a horizontal radius of the circle.
3. Draw sectors whose central angles are 108°, 144°, 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.



Q9.

Answer :

Total percentage $= 100$

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

Calculation of central angles

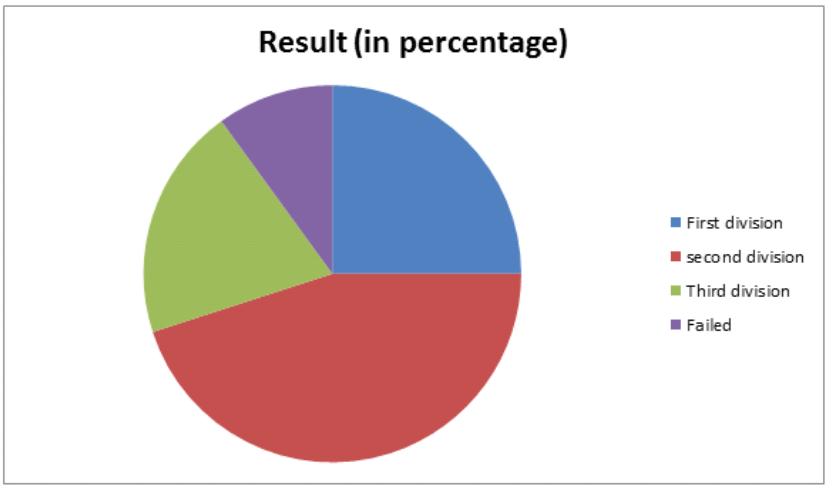
Category	Result (in %)	Central angle
First division	25	90°
Second division	45	162°
Third division	20	72°
Failed	10	36°

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 $= 100$

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

Calculation of central angles :

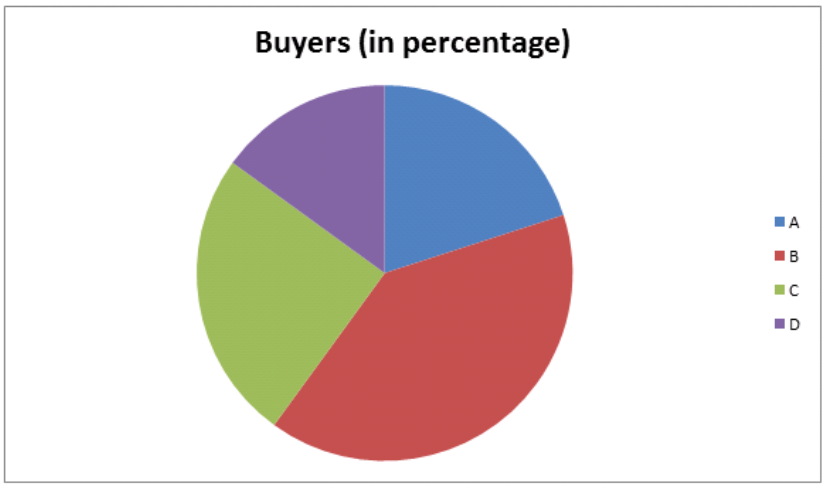
Brand	Buyers (in %)	Central angle
A	20	72°
B	40	144°
C	25	90°
D	15	54°

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

$= \left(\frac{\text{value of expenses on travel}}{\text{monthly income}} \times 360\right)^\circ$

$= \left(\frac{250}{2400} \times 360\right)^\circ$

$= 37\frac{1}{2}^\circ$

Q02.

Answer :

(c) 126°

Central angle of the sector representing the sikh community

$= \left(\frac{\text{value (in \%) of the sikh community}}{100} \times 360\right)^\circ$

$= \left(\frac{35}{100} \times 360\right)^\circ$

$= 126^\circ$

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.