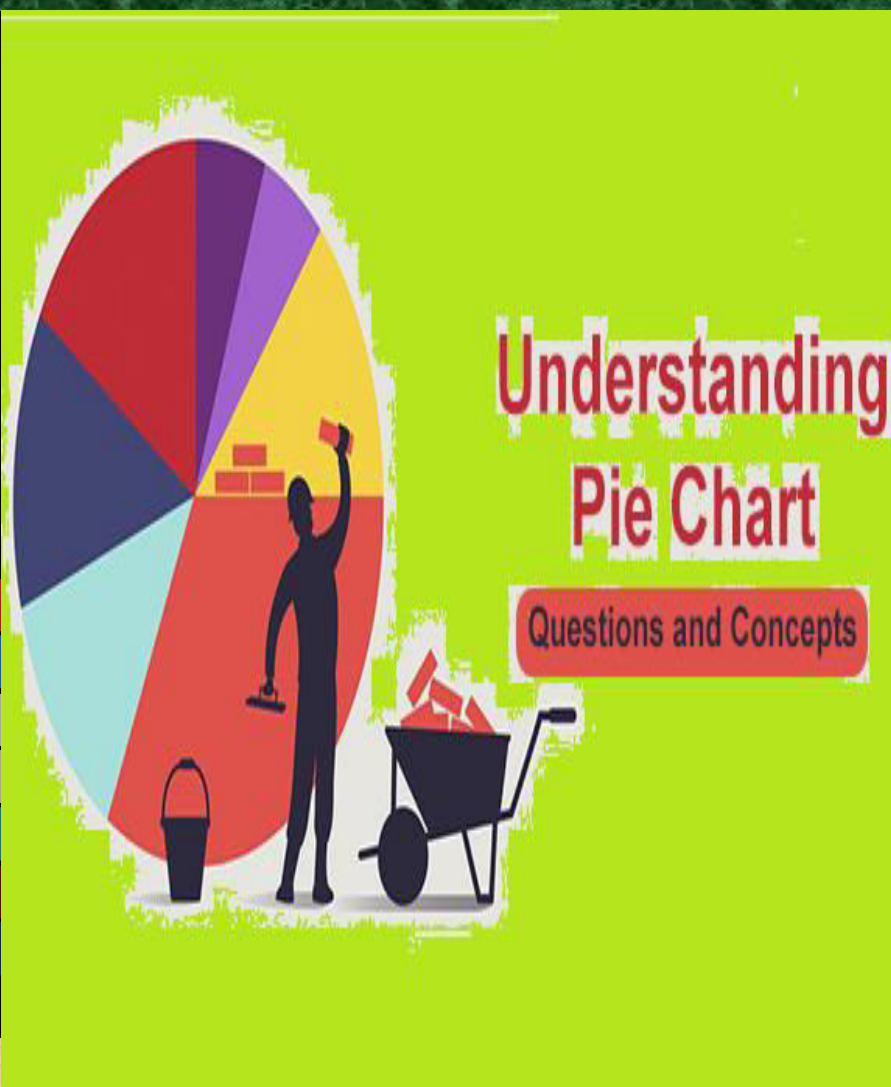


DATA HANDLING



Pie-chart

ATOMIC ENERGY EDUCATION SOCIETY



MONTH : July
CLASS : Eight
SUBJECT : Mathematics

TOPIC
Data Handling
MODULE: 4/5

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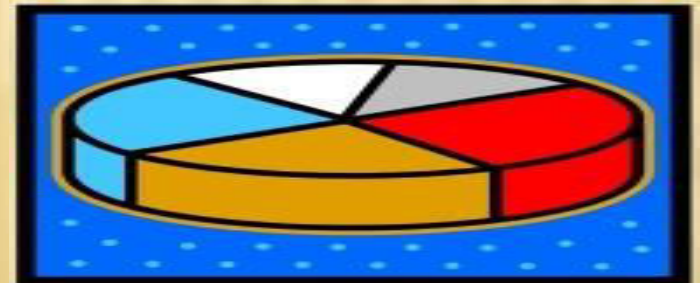


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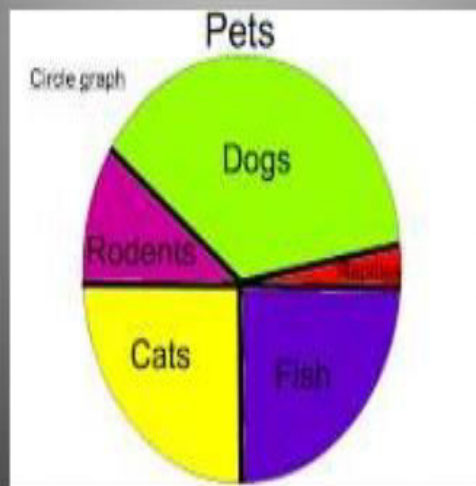
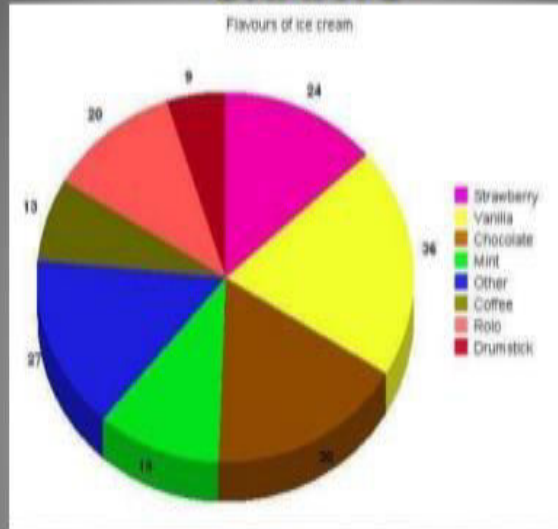
1. Pie chart
2. Drawing Pie Chart.
3. Read the Pie chart and answer the given questions

CIRCLE GRAPH/ PIE CHART

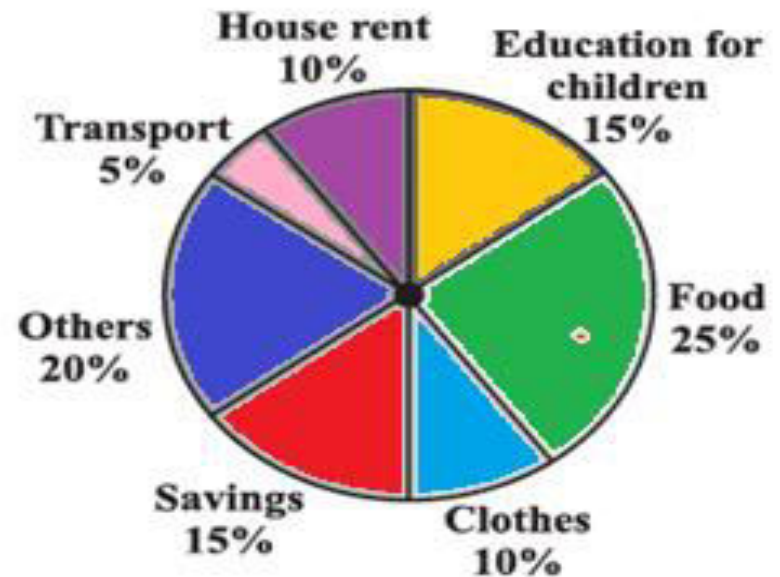
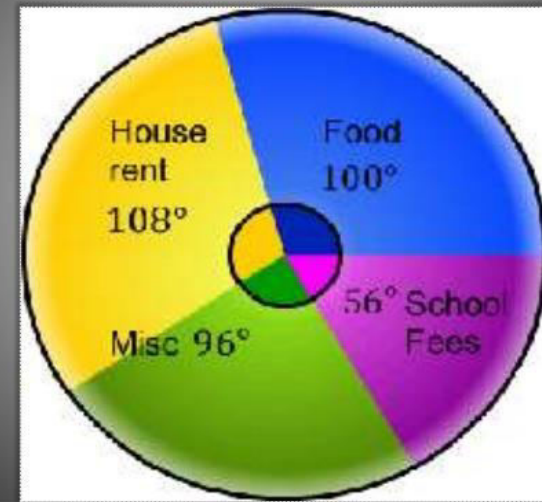
A circle graph represents data in a circular form. A circle graph shows the relationship between a whole and its parts. It is divided into sectors. Each sector visually represents an item in a data set to match the amount of the item as a percentage or fraction of the total data set.



Some More EXAMPLES OF PIE CHARTS

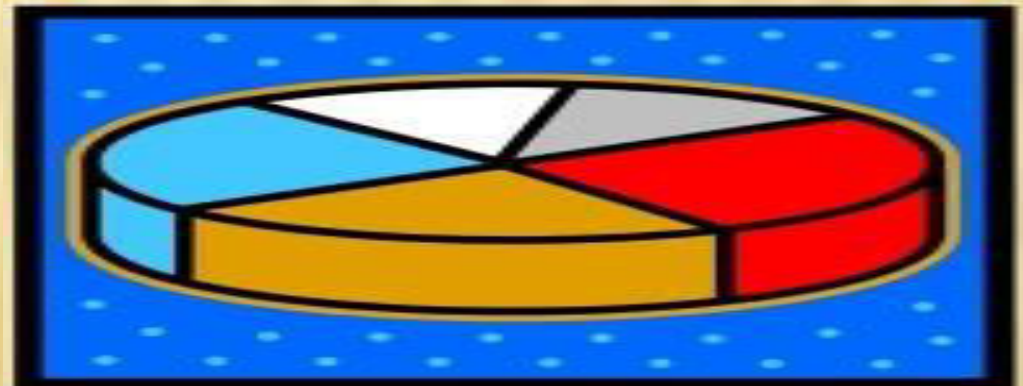


Its representation in a pie diagram is as shown



HOW TO DRAW A PIE CHART

- **Step 1** : Calculate the angle of each sector, using the formula
- **Step 2** : Draw a circle using a pair of compasses
- **Step 3** : Use a protractor to draw the angle for each sector.
- **Step 4** : Label the pie chart and all its sectors.



TO CALCULATE THE ANGLE OF A PIE CHART

Calculate the angle of each sector, using the formula

$$\text{Angle of sector} = \frac{\text{Frequency of data}}{\text{Total frequency}} \times 360^\circ$$

➤ Total angles should add up to 360°

Example

Example .In a school, there are 750 students in Year 1, 420 students in Year 2 and 630 students in Year 3. Draw a circle graph to represent the numbers of students in these groups

Solution.

Total number of students = $750 + 420 + 630 = 1,800$.

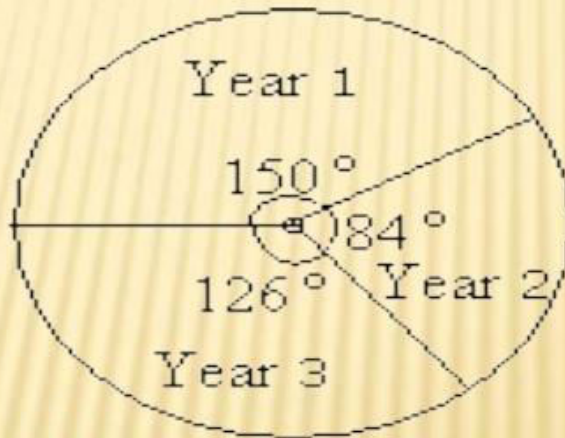
Year 1: size of angle = $\frac{750}{1800} \times 360 = 150$ degrees

Year 2: size of angle = $\frac{420}{1800} \times 360 = 84$ degrees

Year 3: size of angle = $\frac{630}{1800} \times 360 = 126$ degrees

Example

Thus, the pie graph of the previous slide data may be presented as given below



Groups of students in a school

Example

The time spent by a student during a day.

Sleep — 8 hours

School — 6 hours

Homework — 4 hours

Play — 4 hours

Others — 2 hours

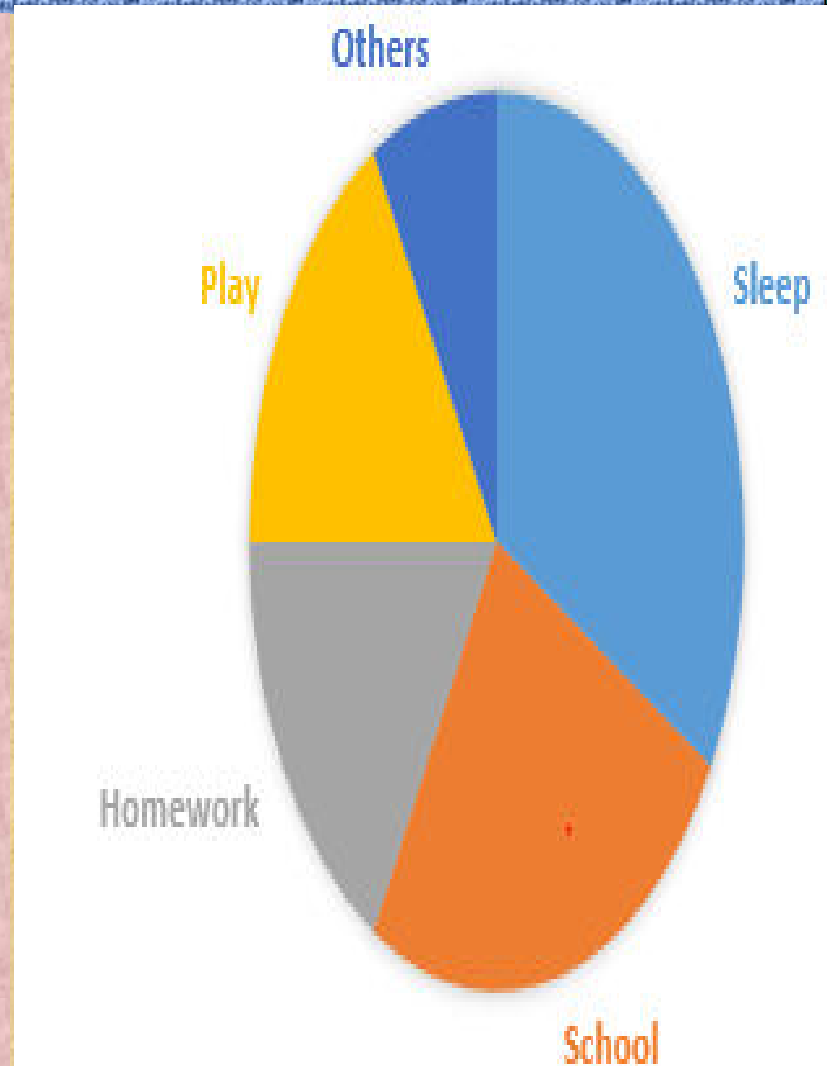
Draw the pie chart

Total hours are 24 hours. Now we need to find fraction of each of the activity with respect to whole day and also the angle subtended by that activity to draw the pie chart

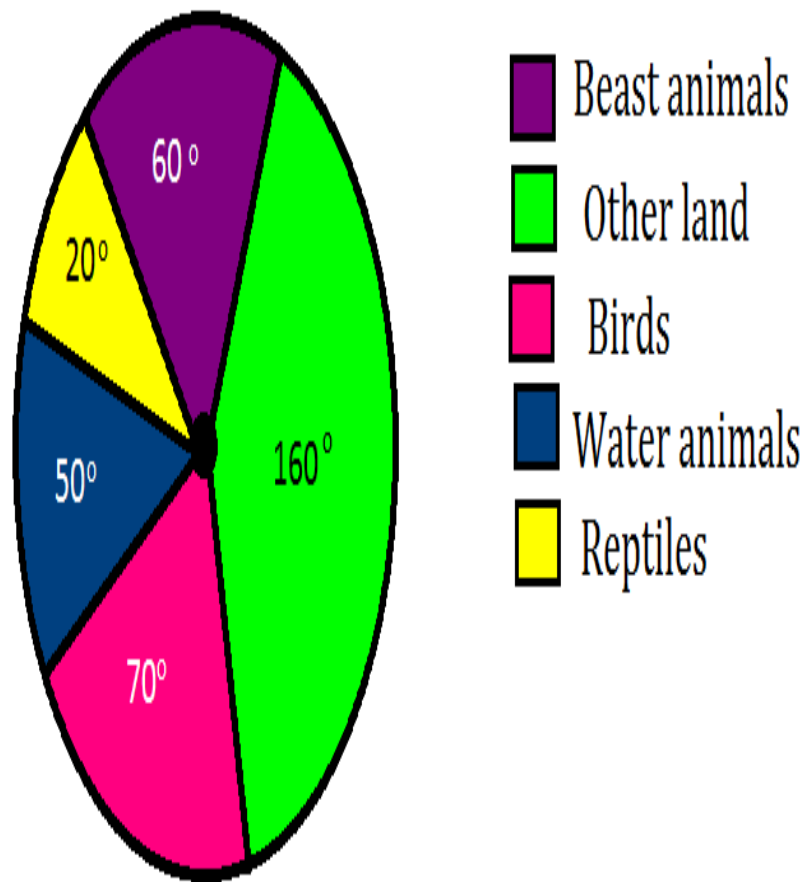
Activity	Hours	Fraction	Central angle (in degrees)
Sleep	8	$8/24=1/3$	$(1/3) \times 360=120$
School	6	$6/24=1/4$	$(1/4) \times 360=90$
Homework	4	$4/24=1/6$	$(1/6) \times 360=60$
Play	4	$4/24=1/6$	$(1/6) \times 360=60$
Others	2	$2/24=1/12$	$(1/12) \times 360=30$

Now to draw the Pie chart, follow the below instructions

1. Draw a circle with any convenient radius. Mark its centre (O) and a radius (OA).
2. Start with one activity, the angle of the sector for sleep is 120° .
3. Use the protractor to draw $\angle 120^\circ$.
4. Continue marking the remaining sectors.



Read the Pie Chart and answer the given questions



- If the total number of animals present in the zoo is 900 then,
 1. What is the total number of water animals?
 2. By how much more are the Beast animals than the Bird ?

ANSWER

Item	Angle (in degrees)	fraction	number
Beast animals	60	$\frac{60}{360} = \frac{1}{6}$	$\frac{1}{6} \times 900 = 150$
Other land	160	$\frac{160}{360} = \frac{4}{9}$	$\frac{4}{9} \times 900 = 400$
birds	70	$\frac{70}{360} = \frac{7}{36}$	$\frac{7}{36} \times 900 = 175$
Water animals	50	$\frac{50}{360} = \frac{5}{36}$	$\frac{5}{36} \times 900 = 125$
reptiles	20	$\frac{20}{360} = \frac{1}{18}$	$\frac{1}{18} \times 900 = 50$

Total number of animals in the zoo are 900.

Solution 1 Total number of Water animals are 125.

Solution 2

Birds are more than the Beast by
 $175 - 150 = 25$

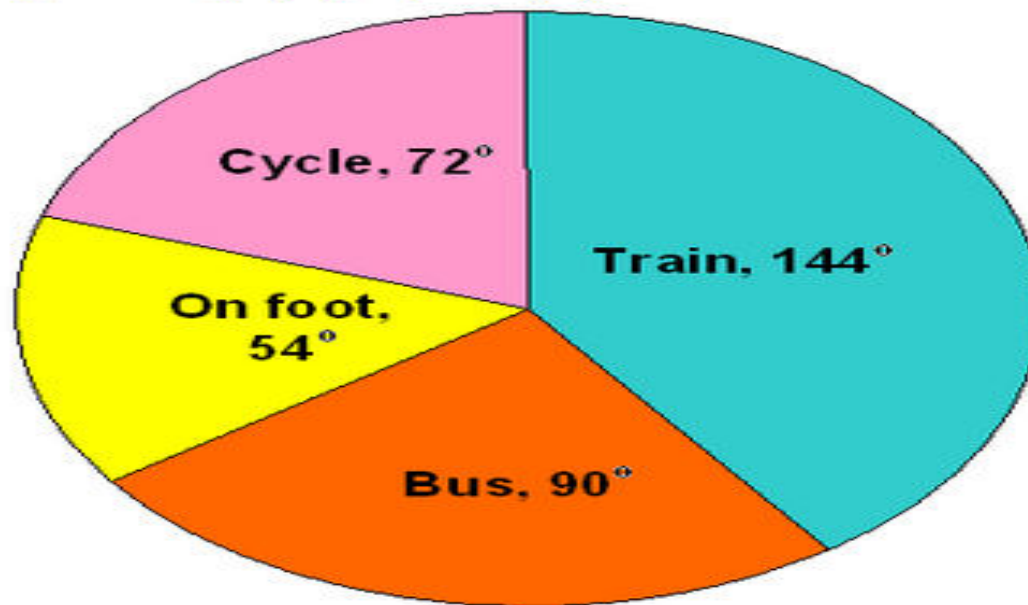
There are 1000 workers who travel from home to factory.

The pie-graph shows the proportion of workers using various mode for traveling to work.

Study the pie-graph and answer the questions given below:

How many workers travel to factory

(i) by bus? (ii) by train? (iii) by cycle? (iv) on foot?



Solution:

Totally there are 1000 workers.

(i) No. of workers traveling by bus = $\frac{90}{360} \times 1000 = 250$

(ii) No. of workers traveling by train = $\frac{144}{360} \times 1000 = 400$

(iii) No. of workers traveling by cycle = $\frac{72}{360} \times 1000 = 200$

(iv) No. of workers traveling on foot = $\frac{54}{360} \times 1000 = 150$

