

## S 4.12 DRAWING BAR GRAPHS

- ✦ We can represent numeric or non-numeric discrete data on a bar graph. A bar graph gives a better visual picture than a frequency table.
- ✦ The bar length represents the frequency of the data item.
- ✦ The bars are not joined together as the data is discrete.

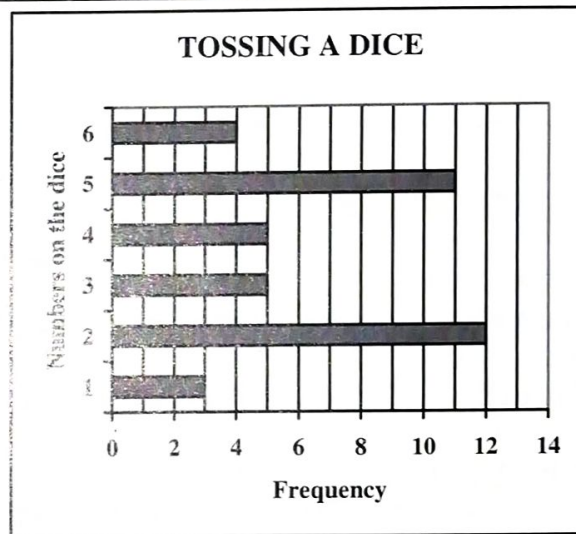
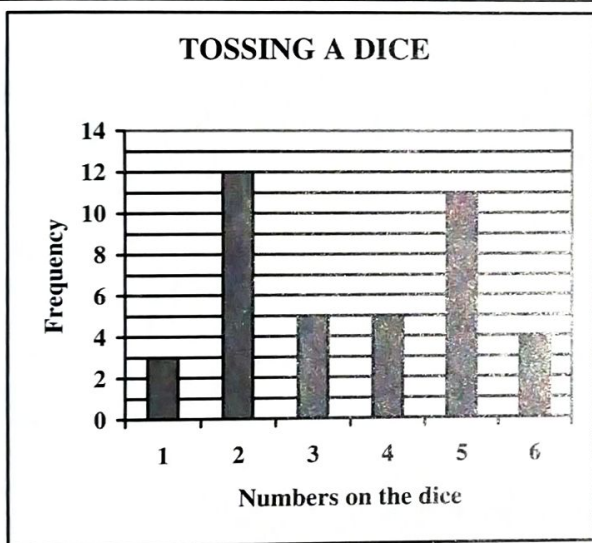
### EXAMPLE

A dice is thrown 40 times and the number is recorded after each throw.

Represent the given data:      **a)** as a vertical bar graph      **b)** as a horizontal bar graph

<b>Number on dice</b>	1	2	3	4	5	6
<b>Frequency</b>	3	12	5	5	11	4

### SOLUTION

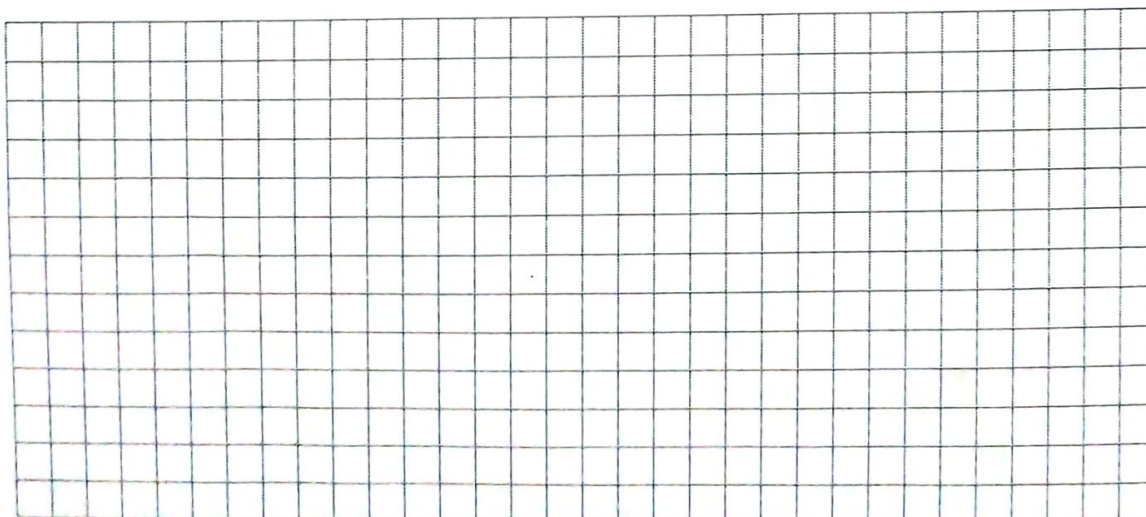


### Exercise 4.12

A bag contains red, black, yellow and white balls that are all identical in size. A ball is chosen at random, its colour recorded and the ball is returned to the bag, which is shaken. This process is repeated 34 times, and the following results are obtained:

<b>Ball colour</b>	<b>Red (R)</b>	<b>Black (B)</b>	<b>Yellow (Y)</b>	<b>White (W)</b>
<b>Frequency</b>	7	9	10	8

Represent the data:      **a)** as a vertical bar graph      **b)** as a horizontal bar graph.



## § 4.13 COMPOUND BAR GRAPHS

Two or more sets of data can be compared by drawing them side by side on a compound bar graph.

### EXAMPLE

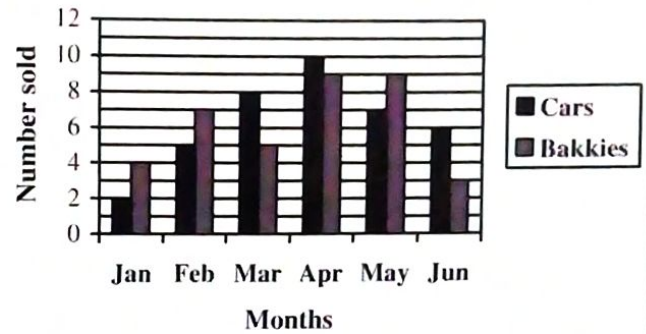
The table shows the number of cars and bakkies sold by a garage in each of the first six months of 2008:

Month	Jan	Feb	Mar	Apr	May	Jun
Cars	2	5	8	10	7	6
Bakkies	4	7	5	9	9	3

- 1) Draw a compound bar graph to illustrate the data
- 2) Use the graph to answer the following:
  - a) Which was the best month for car sales? How many were sold?
  - b) Which was the worst month for bakkie sales?
  - c) In which months were more cars than bakkies sold?

### SOLUTION

NUMBER OF CARS AND BAKKIES SOLD FROM JANUARY TO JUNE 2008



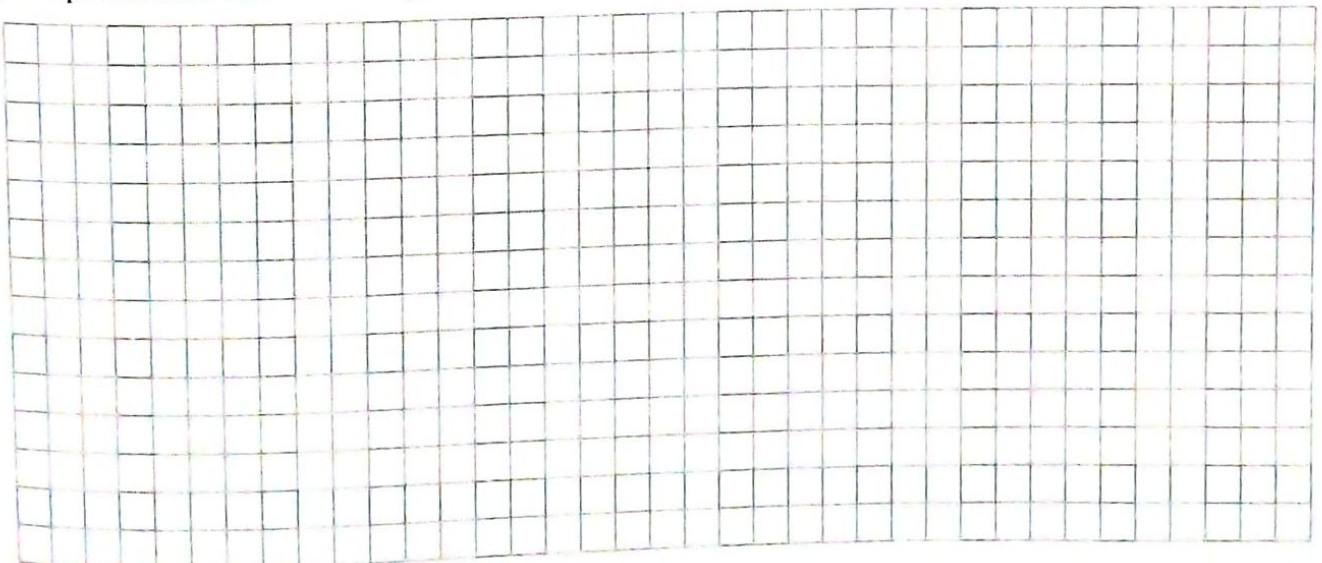
- a) April was the best month. 10 cars were sold.
- b) June was the worst month
- c) March, April and June

### Exercise 4.13

The number of cars and bakkies sold by a garage in each of the last 6 months of 2007:

Month	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cars	6	9	8	8	12	6
Bakkies	4	3	9	10	11	4

- 1) Represent the data as a compound bar graph.



- 2) Use the graph to answer the questions:
  - a) Which was the best month for car sales? How many were sold? .....
  - b) Which was the worst month for bakkie sales? .....
  - c) In which months were more cars than bakkies sold? .....



## § 4.14 PIE CHARTS

- ✦ To represent data in a pie chart, we divide a circle into 'slices' like a pie.
- ✦ Each slice or sector represents the frequency of the data item.

### EXAMPLE

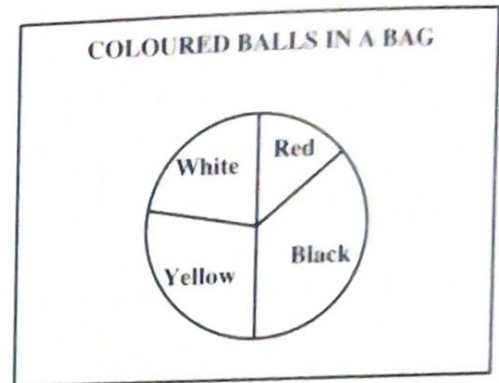
Suppose there are 36 different coloured balls of identical size in a bag.

Ball colour	Red	Black	Yellow	White	TOTAL
Frequency	5	13	10	8	36

Draw a pie chart to represent this data

### SOLUTION

- The angle at the centre of a circle (one revolution) is  $360^\circ$
- There is a total of 36 balls in the frequency table, so each ball is represented by  $\frac{360^\circ}{36} = 10^\circ$  at the centre of the pie.
- Red balls are represented by  $5 \times 10^\circ = 50^\circ$ .  
Black balls are represented by  $13 \times 10^\circ = 130^\circ$ .  
Yellow balls are represented by  $10 \times 10^\circ = 100^\circ$ .  
White balls are represented by  $8 \times 10^\circ = 80^\circ$ .
- Note that these angles add up to  $360^\circ$   
( $50^\circ + 130^\circ + 100^\circ + 80^\circ = 360^\circ$ )



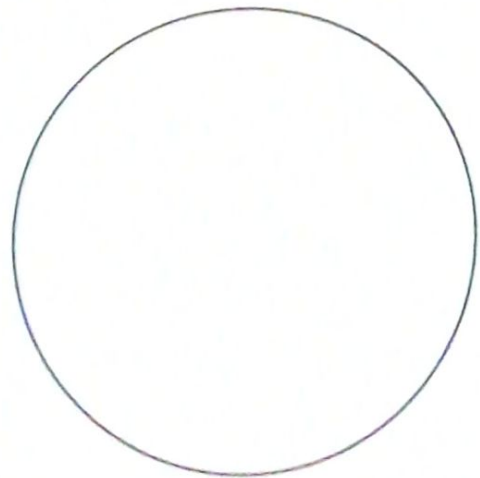
### Exercise 4.14

A dice is thrown 40 times and the number is recorded after each throw.

Number	1	2	3	4	5	6	TOTAL
Frequency	4	11	6	5	12	2	
Angle at the centre							

- 1) What angle represents each throw?
- .....
- .....

- 2) Calculate the angles at the centre of the circle and then complete the above table. Check that the angles add to  $360^\circ$ .
- .....
- .....
- .....
- .....
- .....
- .....



- 3) Draw in a radius of the circle. Use it to begin measuring the angles with your protractor. Complete your pie chart by accurately drawing in each sector or slice of the circle.
- 4) Label each sector and include a title for your pie chart.