

## § 4.15 DRAWING LINE GRAPHS

✦ To represent data using a line graph, the data on the horizontal axis must be **continuous**.

### EXAMPLE

One kilogram (kg) is approximately equal to 2,2 pounds (lb)

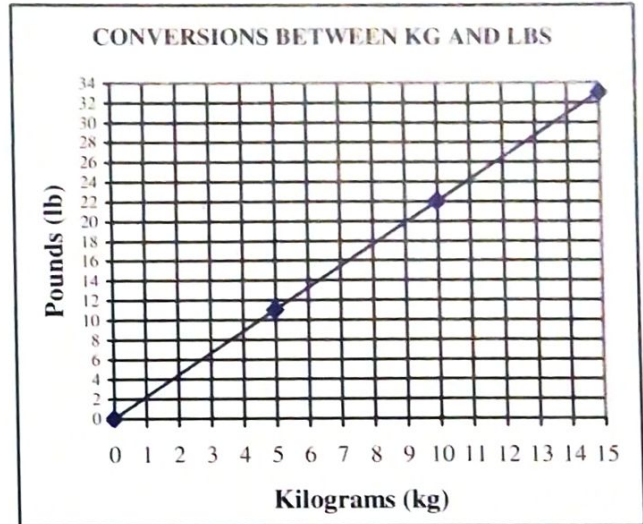
- 1) Complete the following table and use it to draw a conversion graph.

<b>Kilograms (kg)</b>	5		15
<b>Pounds (lb)</b>		22	

- 2) Use your graph to:
- Convert 9 kg to lb
  - Convert 24 lb to kg

### SOLUTION

<b>Kilograms (kg)</b>	5	10	15
<b>Pounds (lbs)</b>	11	22	33



- 9 kg  $\approx$  20 lb
- 24 lb  $\approx$  11 kg

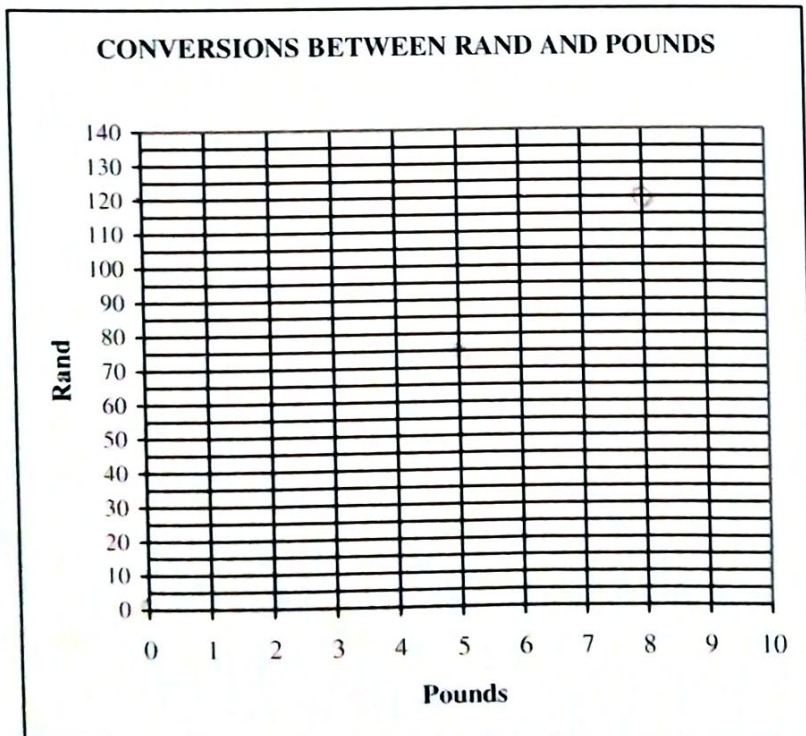
### Exercise 4.15

On a certain day the conversion rate between the South African rand and the British pound is £1 = R15

- 1) Use the conversion rate to complete the given table:

<b>Rand (R)</b>	15	?	135
<b>Pounds (£)</b>	1	2	9

- 2) Draw a graph showing the conversion between rand and pounds on the following grid:



- 3) Use your graph to:
- Convert £5 to rand  
.....
  - Convert £8 to rand  
.....
  - Convert R60 to £  
.....
  - Convert R100 to £  
.....

## § 4.16 BROKEN LINE GRAPHS

✦ Broken line graphs are used to represent **discrete** data.

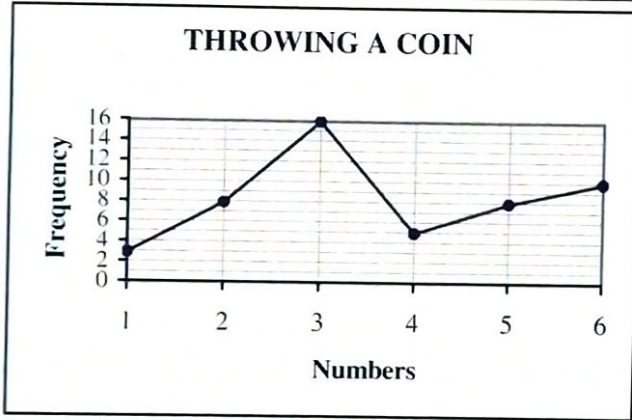
### EXAMPLE

A dice is thrown 50 times and the numbers are recorded.

<b>Number</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Frequency</b>	3	8	16	5	8	10

Represent this data on a broken line graph.

### SOLUTION



#### Note:

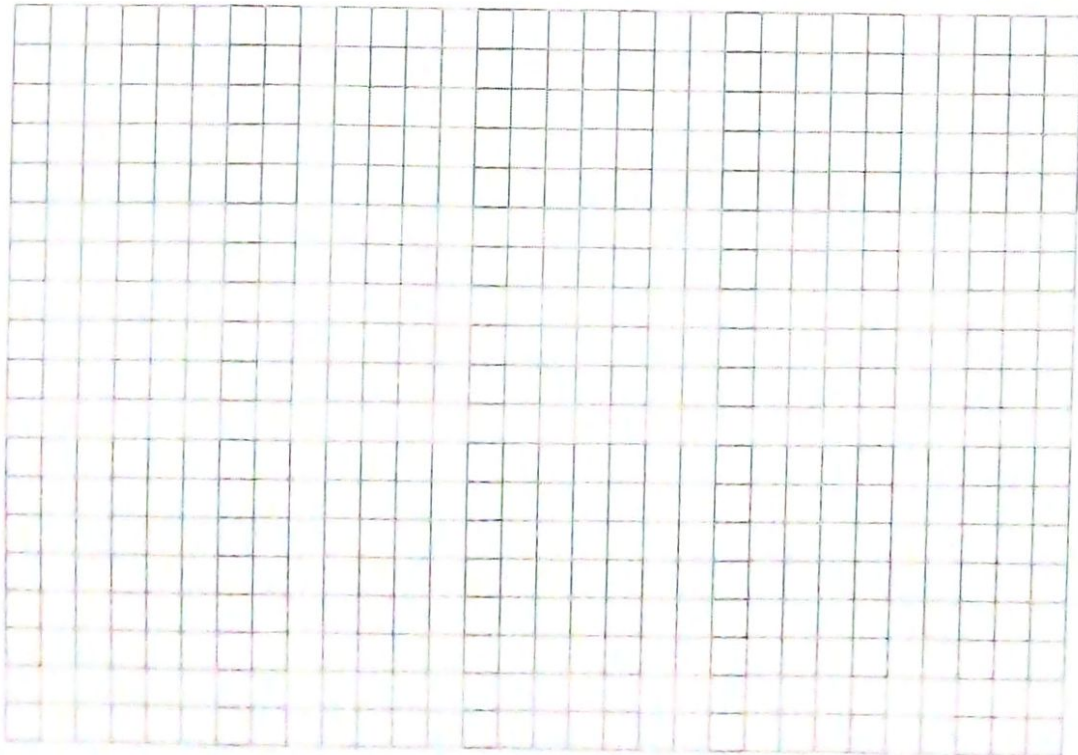
- The data is discrete, so plotted points are joined with a broken line to show the trend.
- There are no values between the plotted points
- It would seem from the frequencies that the die is weighted

### Exercise 4.16

A class of learners were asked to choose whether they preferred chocolate bar A, B, C or D. The results of the survey are recorded on a frequency table.

<b>Chocolate bar</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Frequency</b>	6	13	16	10

Draw a broken line graph to represent this data.



## § 4.17 DRAWING A HISTOGRAM

- ✦ Continuous data can be represented by using a histogram.
- ✦ If the width of each column is the same, the height of the column indicates the frequency.
- ✦ A histogram has **no gaps** between the rectangular bars.

### EXAMPLE

A dentist recorded the number of fillings in the teeth of a group of college students.

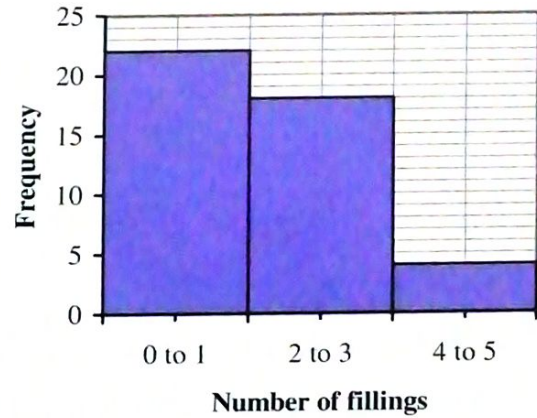
He listed the results in a grouped frequency table

<b>Number of fillings</b>	0 – 1	2 – 3	4 – 5
<b>Frequency</b>	22	18	4

Draw a histogram to represent the data.

### SOLUTION

**STUDENTS' FILLINGS**



### Exercise 4.17

The following frequency table gives the percentage obtained in a test by 38 students in a Level 2 class:

<b>Marks</b>	1 – 20	21 – 40	41 – 60	61 – 80	81 – 100
<b>Frequency</b>	4	6	9	11	8

Draw a histogram to represent the data:

