Tables, charts and graphs

Below is an annotated exam question, showing a table and a scatter graph.

Figure 9 gives some of the readings.

Each column in a table must have a header and a unit which tells us what the numbers in that column represent.

depth in m	pressure in kPa
0.050	99.15
0.100	99.70
0.150	100.15
0.200	100.70
0.250	101.15
0.300	101.70

Recorded data in a single column must be given to the same number of decimal places. The number of decimal places should match the resolution of the measuring device used.

Resolution is the smallest measurable quantity for that device.

e.g. a ruler has a resolution of 1 mm.

Figure 9

Figure 10 shows a graph with some of the results plotted, but two of the points are missing.

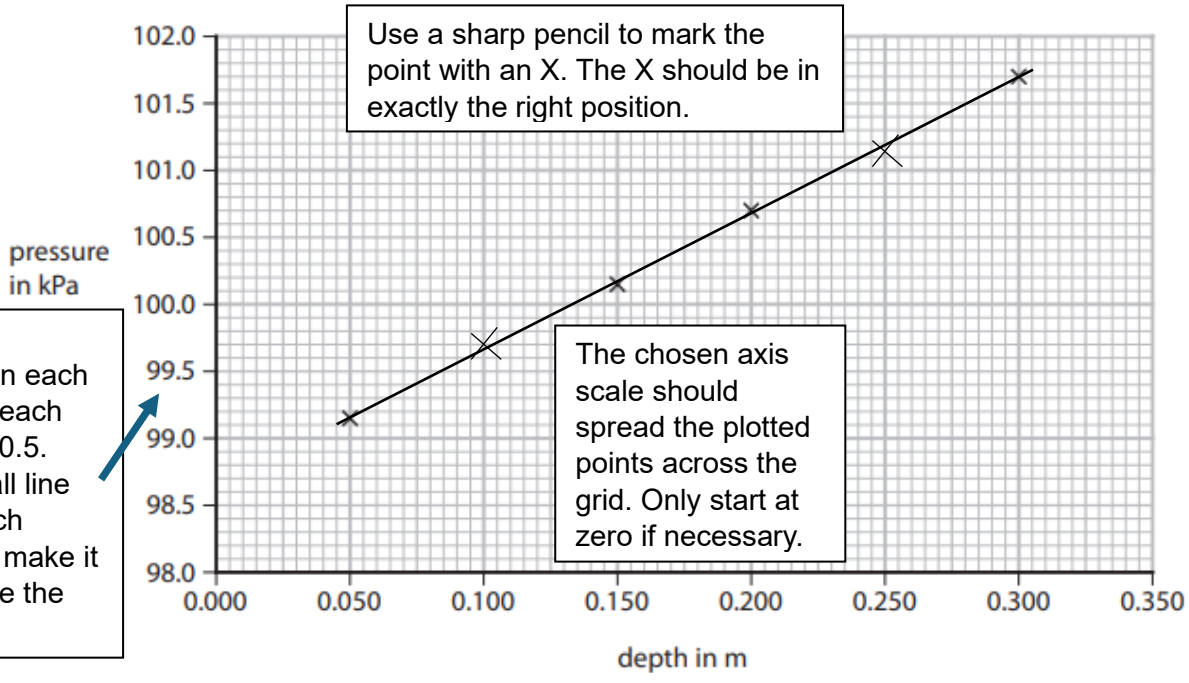


Figure 10

(i) Plot the two missing points on the graph.

Both additional points are plotted. Check they are correct.

(ii) Draw a line of best fit through the points on the graph.

A line of best fit can be straight or curved; This example has a straight line with a balanced number of points above, below and on the line, so this is a good line of best fit.

A scatter graph is used for **continuous data**, when both axes are numerical.

A bar chart is used if one axis has **categorical data** (specific categories).

Usually, you will have to interpret bar charts in the exam, here is an example:

(c) Figure 12 shows the mean rate of decomposition for this investigation.

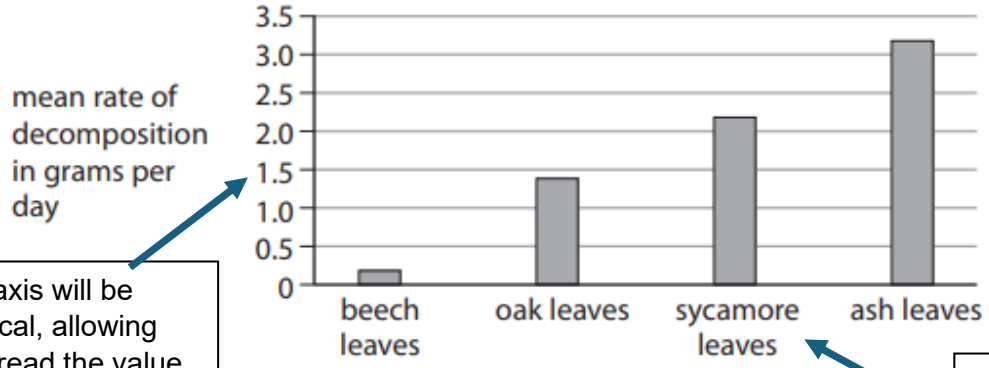


Figure 12

The y-axis will be numerical, allowing you to read the value of each category.

The categories on this x-axis are types of leaf.

(i) Which leaves would produce compost in the least time?

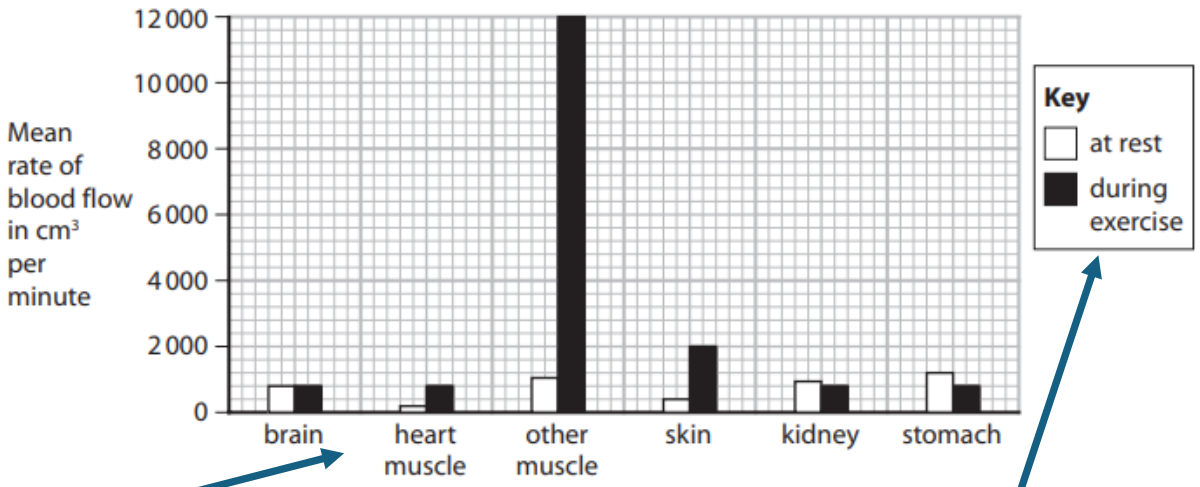
(1)

- ☒ **A** beech leaves
- ☒ **B** oak leaves
- ☒ **C** sycamore leaves
- ☒ **D** ash leaves

The answer is D.

The ash leaves decompose at a higher rate (number of grams per day). Use the graph to confirm this by reading the axis label and matching the height of the bar to the value on the y-axis.

Sometimes the bar chart will show two bars per category. You will need to check the key to see what each bar means, here is an example:



The x-axis category is 'different parts of the body' and the two different coloured bars represent blood flow at rest and during exercise. Check the axes and the key to confirm this

Questions:

Q1

(iii) A student researched the number of people with TB in some countries.

Figure 4 shows the student's data.

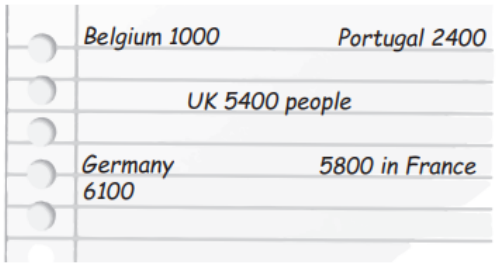


Figure 4

Complete the table to show the student's data.

(2)

Q2

(b) Figure 4 shows the rainfall for one area in England for part of 2022.

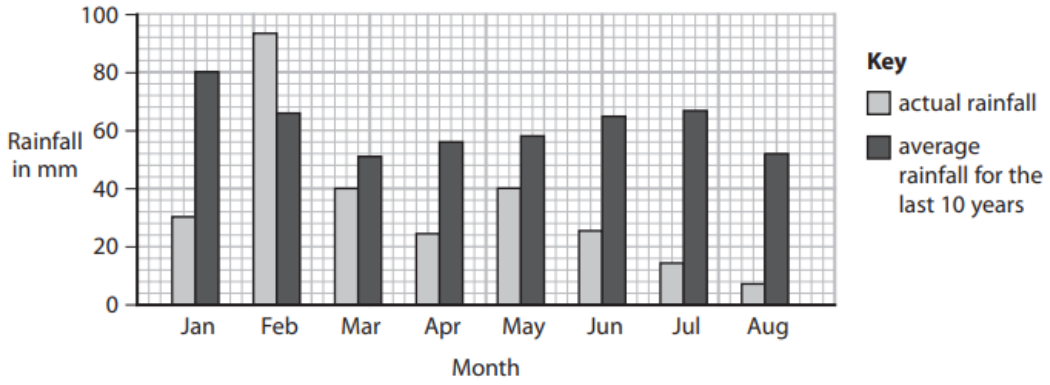


Figure 4

(i) State **two** conclusions about the actual rainfall compared with the average rainfall shown in Figure 4.

(2)

1 .....

.....

2 .....

.....

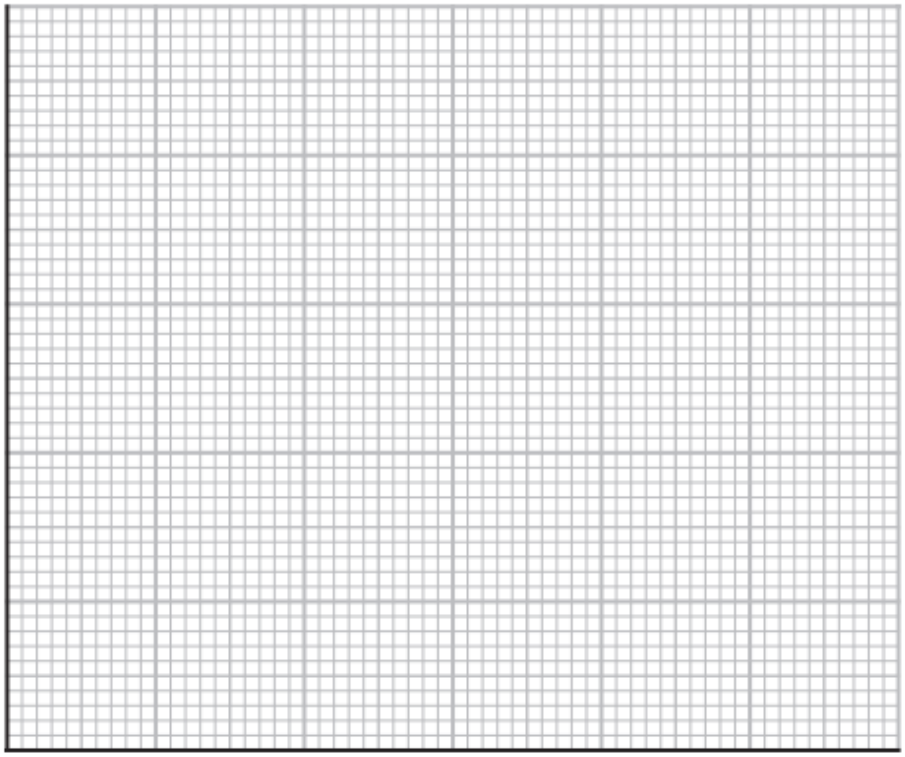
concentration of potassium ions in mol dm^{-3}	display reading
0.025	180
0.050	280
0.100	440
0.200	580
0.500	900

Figure 9

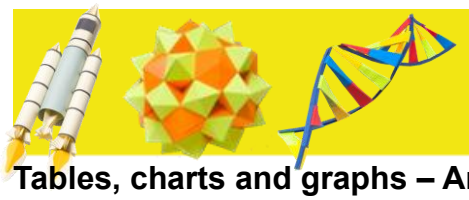
Use the information in Figure 9 to plot the calibration curve on the grid below.

(3)

display reading



concentration of potassium ions in mol dm^{-3}



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Tables, charts and graphs – Answers

Q1

Answer	Additional guidance
• suitable heading for each column, with country in the left column (1)	accept country / region / number of people / people with TB
• all data entered accurately (1)	countries can be entered in any order

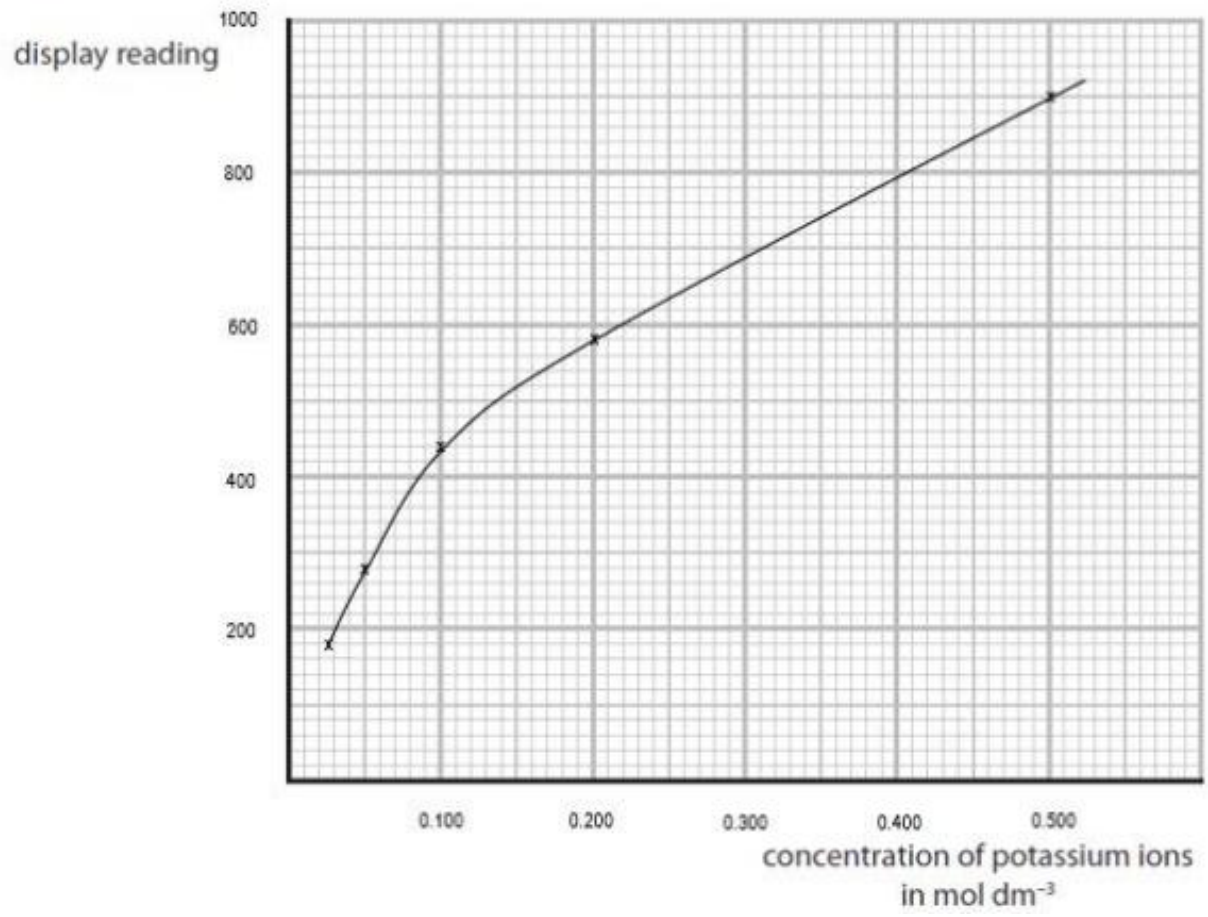
e.g.

Country	Number of people with TB
Belgium	1000
Portugal	2400
UK	5400
Germany	6100
France	5800

Q2

Answer	Additional guidance
Two conclusions from: • there was less rain in 2022 than average (1) • seven of the eight months (in 2022) had less rainfall than the average / {February was the **only** month / there was **only** one month} when more rain fell (than average in 2022) (1) • a specific comparison shown in the graph, e.g. {July had the largest difference / March had the least difference} in rainfall (1)	accept 2022 was a very dry year

Q3



suitable scale on axes using more than half axis in both directions (1)

correctly plotted points (1)

best fit curve (1)