

AQA GCSE Geography skills workbooklet

In all three of your exams you can be expected to do any of the skills demonstrated in this workbooklet. This workbooklet is your opportunity to practice and develop most of the skills required. Answers can be found at the back of the booklet.

Map skills:

Cartographic skills relating to a variety of maps at different scales.

Atlas maps:

- use and understand coordinates – latitude and longitude
- recognise and describe distributions and patterns of both human and physical features
- maps based on global and other scales may be used and students may be asked to identify
- and describe significant features of the physical and human landscape on them, eg population distribution, population movements, transport networks, settlement layout, relief and drainage
- analyse the inter-relationship between physical and human factors on maps and establish associations between observed patterns on thematic maps.



Ordnance Survey maps:

- use and interpret OS maps at a range of scales, including 1:50 000 and 1:25 000 and other maps appropriate to the topic
- use and understand coordinates – four and six-figure grid references
- use and understand scale, distance and direction – measure straight and curved line distances using a variety of scales
- use and understand gradient, contour and spot height
- numerical and statistical information
- identify basic landscape features and describe their characteristics from map evidence
- identify major relief features on maps and relate cross-sectional drawings to relief features
- draw inferences about the physical and human landscape by interpretation of map evidence, including patterns of relief, drainage, settlement, communication and land-use
- interpret cross sections and transects of physical and human landscapes
- describe the physical features as they are shown on large scale maps of two of the following landscapes – coastlines, fluvial and glacial landscapes
- infer human activity from map evidence, including tourism.

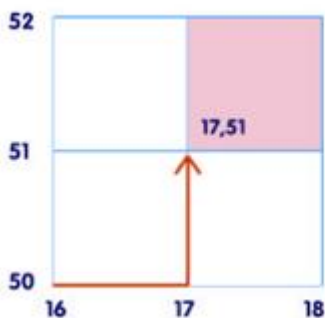
Maps in association with photographs:

- be able to compare maps
- sketch maps: draw, label, understand and interpret
- photographs: use and interpret ground, aerial and satellite photographs
- describe human and physical landscapes (landforms, natural vegetation, land-use and settlement) and geographical phenomena from photographs
- draw sketches from photographs
- label and annotate diagrams, maps, graphs, sketches and photographs.

Four and six figure grid referencing:

The golden rule of grid referencing: along the corridor and up the stairs.

OS maps are divided into **numbered squares**. These squares can be used to give a place a four or six-figure grid reference. It is important that you know both **four-figure** and **six-figure** grid references.

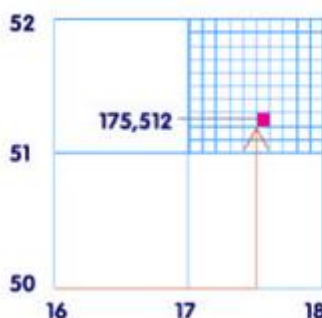


Four-figure grid references

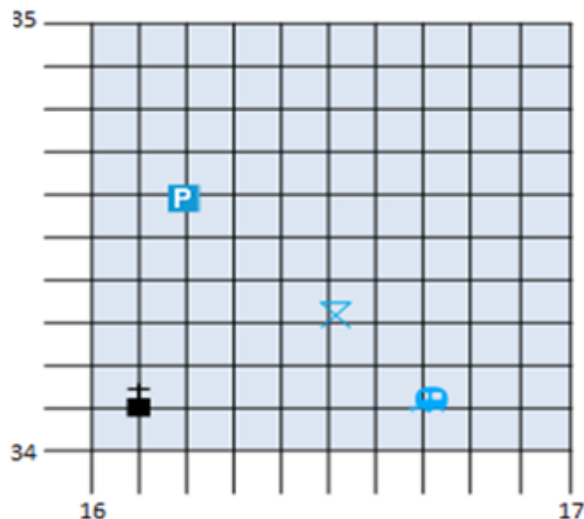
Each square has a grid reference which you get by read the lines that meet in the bottom left hand corner of the square.

Six-figure grid references

In your head, you should be able to divide all sides of the square into ten equal sections. By doing this, you can pinpoint locations within the square – these are called six-figure grid references.



Have a go at writing the six-figure grid references for the grid below:



1
2
3
4




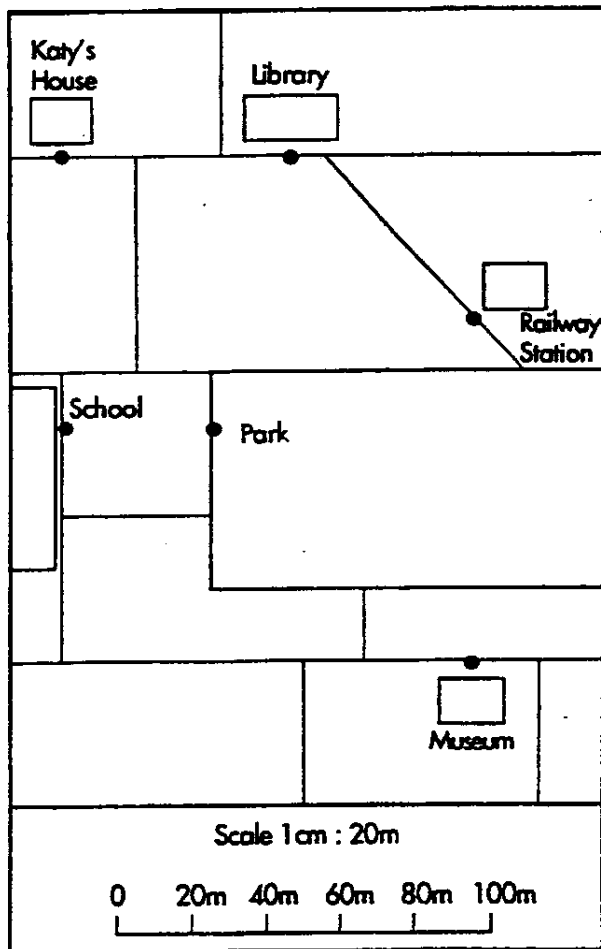
How to measure distance on a map:

1. Find the scale for the map you're going to use - it might be a ruler-looking bar scale or a written scale, in words or numbers.
2. Use a ruler to measure the distance between the two places. If the line is quite curved, use a string to determine the distance and then measure the string.
3. If the scale is a representative fraction (and looks like 1/100,000 or 1:100,000), multiply the distance of the ruler by the denominator, giving distance in the ruler units.
4. If the scale is a word statement (i.e. "One centimeter equals one kilometer") then determine the distance.
5. For a graphic scale, you'll need to measure the graphic and divide the scale into the measured units on the ruler.

6. Convert your units of measurement into the most convenient units for you (i.e. convert 63,360 inches to one mile)

Measuring distance activity:

 Use the chart below to work out the shortest journey between places. Use the dots as start and finish points.




How far is it from my house to school?



How many metres will I need to walk from the station to the museum?



Which is farthest from the park, the museum or the library?

 Invent some questions yourself.

Studying maps example questions:

1. Study the maps below:



Shade one circle only for the correct answers in the sentences below (3):

- 1.1. To the west, Mali shares a border with the country of:
- ☐ Algeria
- ☐ Cote d'Ivoire
- ☐ Mauritania
- 1.2. In which part of Mali is the capital Bamako?
- ☐ north
- ☐ south-east
- ☐ south-west
- 1.3. The city of Taoudenni is how many kilometres north of Araouane?
- ☐ 220km
- ☐ 250km
- ☐ 300km

1 Study the maps below:



Brazil Map



Shade one circle only for the correct answers in the sentences below (3):

1.4. To the west, Brazil shares a border with the country of:

- ☐ Suriname
☐ Venezuela
☐ Peru

1.5. In which part of Brazil is Rio de Janeiro?

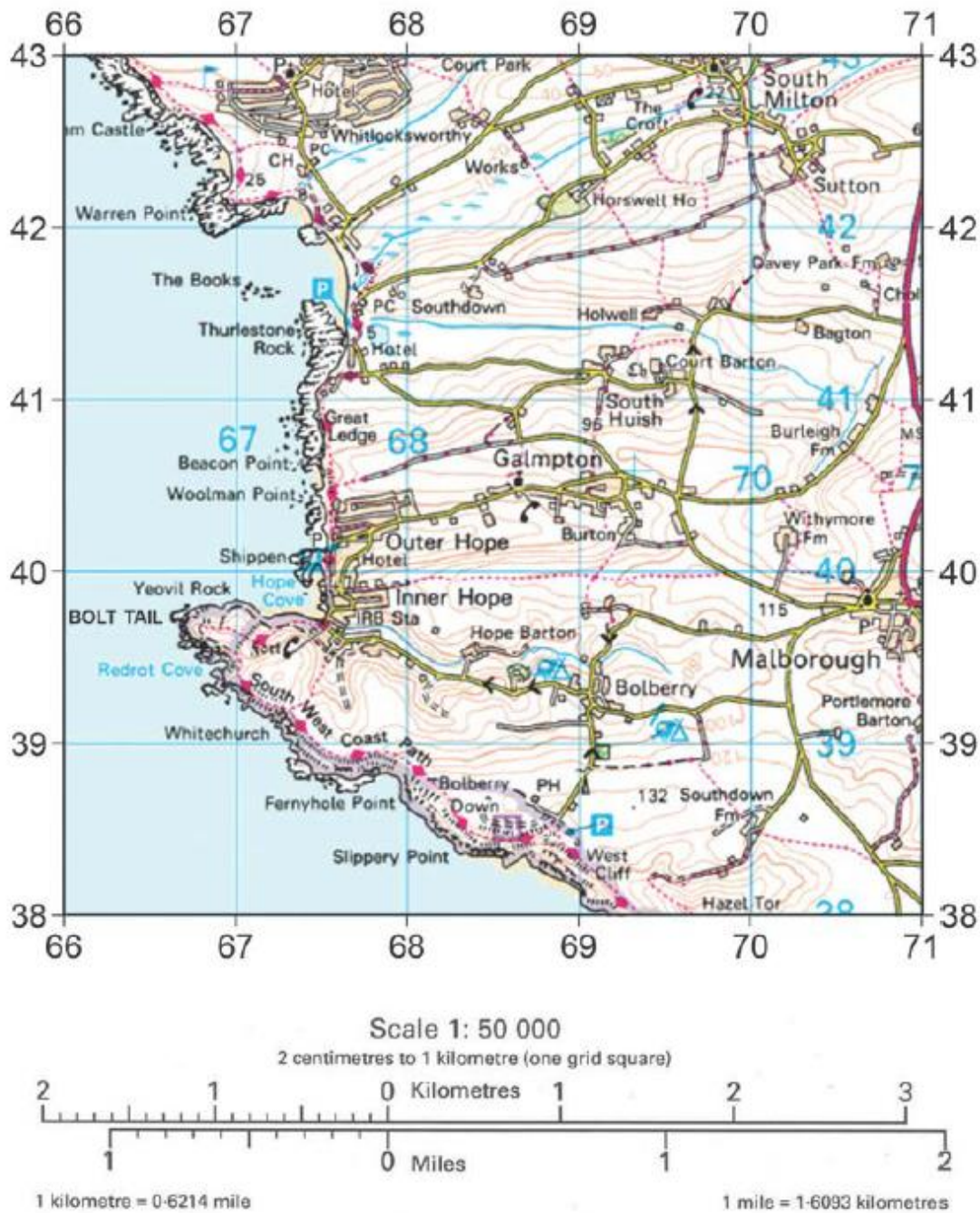
- ☐ West
☐ south-east
☐ south-west

1.6. The city of Belo Horizonte is how many kilometres north of Rio De Janeiro?

- ☐ 200km
☐ 360km
☐ 1000km

2. Study figure 2a, a 1:50,000 Ordnance Survey map extract of the coast of south west England.

SM.



2.1 Using figure 2a, match the coastal feature below to the correct grid reference. Shade one circle only.

Choose from the following grid references:

A 673398 B 669421 C 668428

Coastal feature	Grid reference
Wave cut platform	<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C

[1 mark]

2.2. What is the straight line distance between Warren Point (6642) and Bolt Tail (6639)?

Shade one circle only.

- A 1.8 km
- B 2.4 km
- C 3.0 km
- D 3.6 km

☐

☐

☐

☐

[1 mark]

2.3 Suggest one reason for the uneven shape of the coastline shown in figure 2a.

Figure 2B, a photograph of Bolt Tail shown in grid square 6639 Figure 2A.



2.4. Using figures 2A and 2B, in which direction was the photographer facing when the picture was taken?
Shade one circle only.

- A North east
- B North west
- C South east
- D South west

☐☐☐☐

[1 mark]

2.5 Name one process of erosion that may affect these cliffs.

[1 mark]

OS map of Swanage Dorset



3. Study the OS map above which shows Dorset in Swanage.

3.1. Give the four figure grid reference for Swanage Bay (1) _____

3.2. Identify the symbol found at grid square 023782(1) _____

3.3. Which of the following gives the 6-figure grid reference of Old Harry (1) **Shade one circle only.**

☐ 041787

☐ 055825

☐ 825055

☐ 049813

3.4. State the full 6 figure grid reference for the train station in 0278 (1) _____

3.5. Give the height in metres shown by the spot height in grid square 0177 (1) _____

3.6. Calculate the difference in height in metres between the spot height at 008813 and 013776 (1) _____

3.7. What is the approximate length between Peveril point and Durston Head (1) **Shade one circle only.**

☐ 1km

☐ 2km

☐ 3km

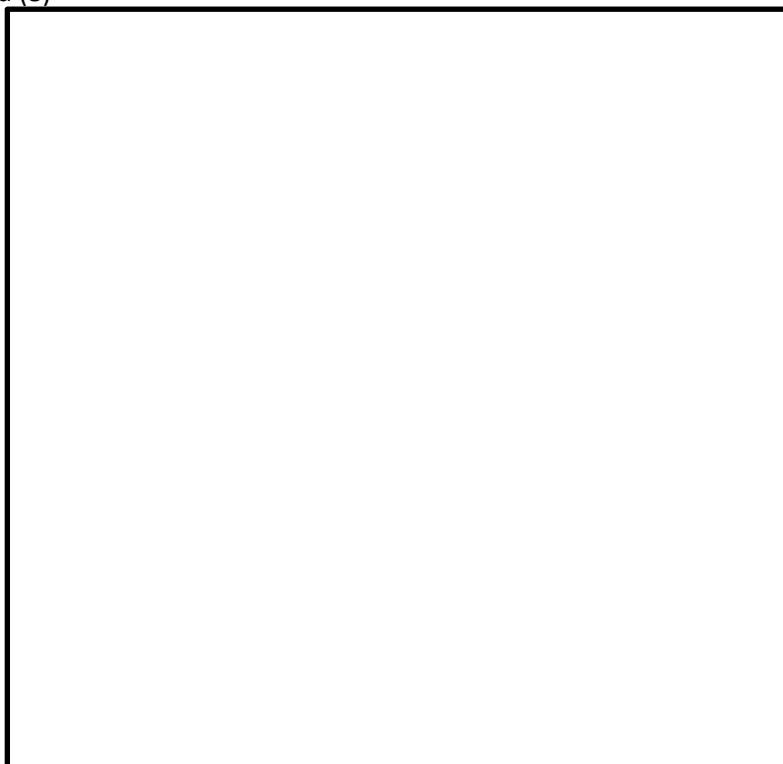
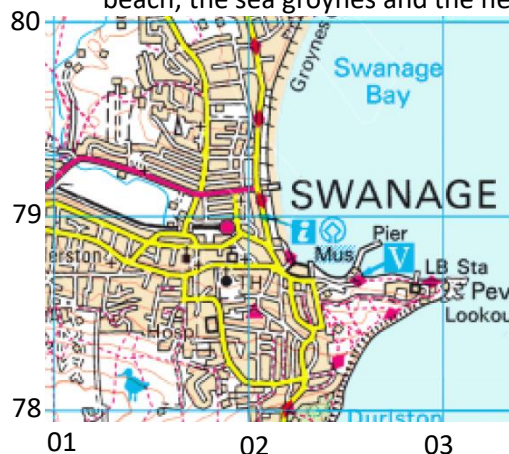
☐ 4km

3.8. There are three headlands shown on the map. One is the Foreland. Name the other two. (2)

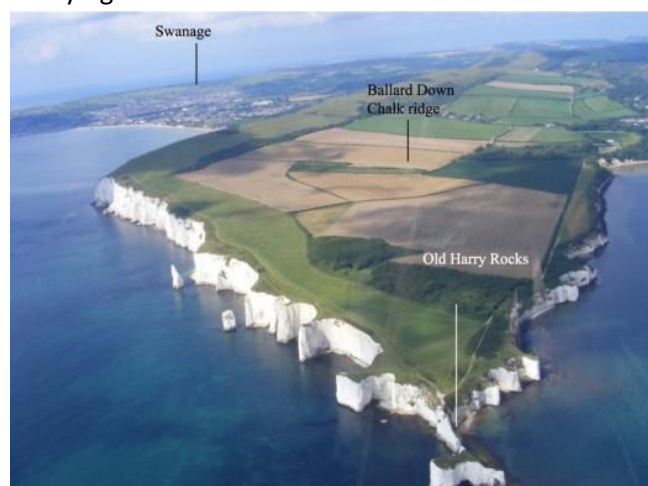
1. _____ 2. _____

3.9. State two pieces of map evidence that suggests tourism is an important part of the local economy in Dorset (2)

3.10. Study figure 2, an OS map extract of Swanage. Draw a sketch map of the settlement in the book. Include these details: the train station, the train line, the location of the seven churches, the main roads, the beach, the sea groynes and the headland (8)



Study figure 3:



3.11 Which one of the following describes the type of photograph shown in figure 3 (1)

☐ Ground level

☐ Satellite

☐ Aerial

3.12 What direction is this photo facing? (1) _____

Graphical skills

In all AQA exams they ask you do a wide range of graphical skills:

- select and construct appropriate graphs and charts to present data, using appropriate scales – line charts, bar charts, pie charts, pictograms, histograms with equal class intervals, divided bar, scattergraphs, and population pyramids
- suggest an appropriate form of graphical representation for the data provided (what graph is best for a data set)
- complete a variety of graphs and maps – choropleth, isoline, dot maps, dot density maps, proportional symbols and flow lines
- use and understand gradient, contour and value on isoline maps
- plot information on graphs when axes and scales are provided
- interpret and extract information from different types of maps, graphs and charts, including population pyramids, choropleth maps, flow-line maps, dispersion graphs.

Tips on describing trends: use the PDA technique:

- ★ Pattern: what is the trend? Is it increasing or decreasing? Was the rate of change always the same or did it fluctuate - a little/a lot? At a particular point in time?
- ★ Data: Quote figures.
- ★ Anomalies: Are there any anomalies (things that don't fit the normal pattern)?

Tips for 'compare' questions:

- ★ Use words like: higher, lower, whereas, on the other hand.
- ★ Again quote figures.

Numerical skills and statistical skills:

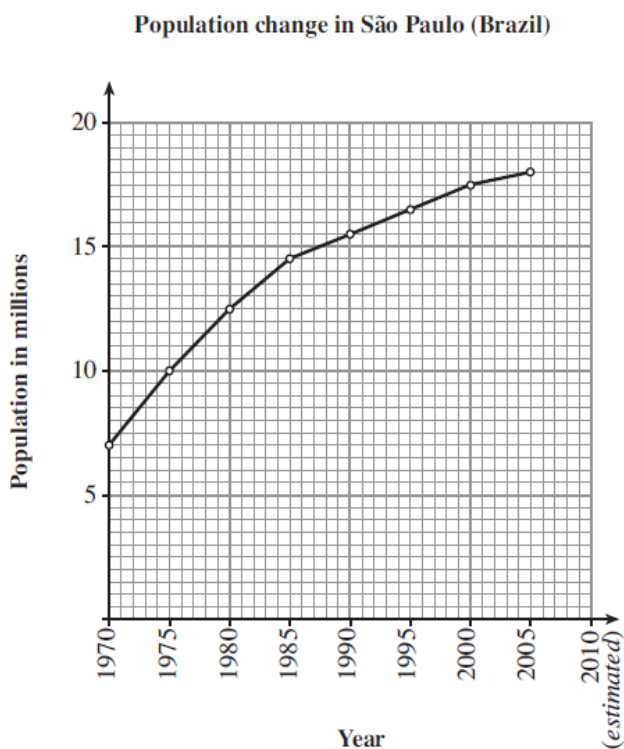
Numerical skills needed:

- demonstrate an understanding of number, area and scales, and the quantitative relationships
- between units
- design fieldwork data collection sheets and collect data with an understanding of accuracy, sample size and procedures, control groups and reliability
- understand and correctly use proportion and ratio, magnitude and frequency
- draw informed conclusions from numerical data.

Statistical skills to:

- use appropriate measures of central tendency, spread and cumulative frequency (median, mean, range, quartiles and inter-quartile range, mode and modal class)
- calculate percentage increase or decrease and understand the use of percentiles
- describe relationships in bivariate data: sketch trend lines through scatter plots, draw estimated lines of best fit, make predictions, interpolate and extrapolate trends
- be able to identify weaknesses in selective statistical presentation of data.

Study the graph below.

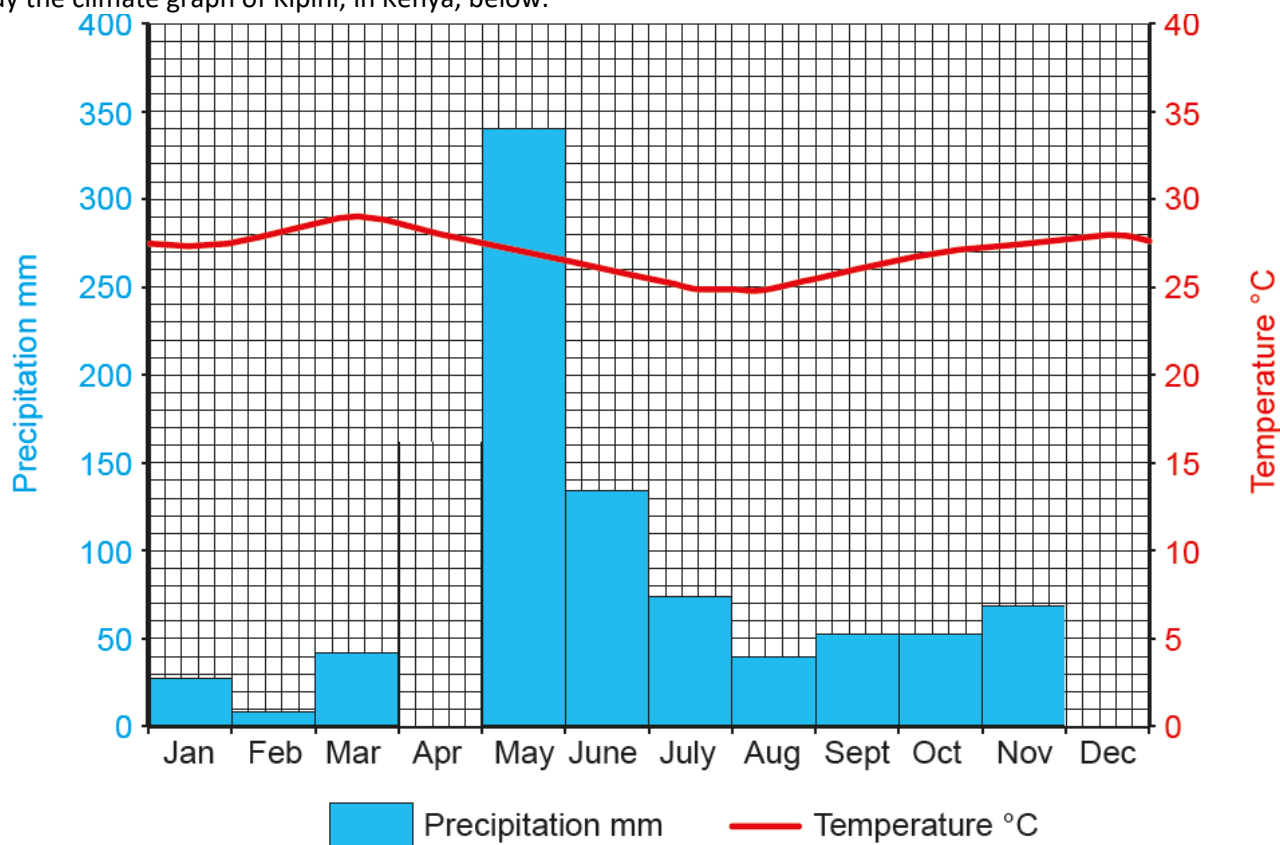


4.1 Complete the graph for Sao Paulo using the information below (1)

The estimated population in 2010 is 20 million.

4.2 Describe the trend of Sao Paulo's population change between 1970 and 2005. Refer to figures from the graph (2)

5 Study the climate graph of Kipini, in Kenya, below.



5.1 Select the information from the table below to complete the graph: (2)

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Precipitation (mm)	38	10	40	140	340	130	75	40	50	50	70	85
Temp (°c)	27.5	28	29	28	27	26	25	25	25.5	27	27.5	28

5.2 Calculate the total precipitation (1) _____

5.3 Calculate the precipitation range (1) _____

5.4 Calculate the mean temperature for Kipini (1) (to 2.d.p) _____

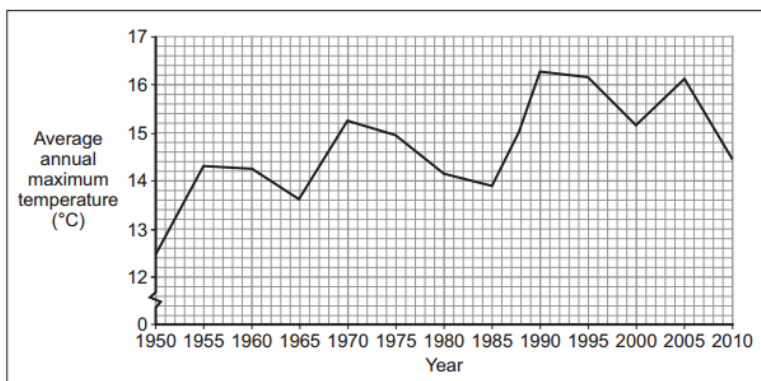
5.5 Calculate the median temperature for Kipini (1) _____

5.6 Calculate the mode temperature for Kipini (1) _____

5.7 Describe the pattern of precipitation throughout the whole year in Kipini. Refer to figures in your answer. [2]

6. Study figure 5- a graph showing average temperatures at Heathrow airport, London from 1950 to 2010

6.1 Describe the trends shown in figure 5 (3)



Students measured the flow of water in two different rivers over 7 days. **Figure 7** shows the results, in rank order, for the two rivers.

Figure 7

	River A (Flow in cubic metres/second)	River B (Flow in cubic metres/second)
	6.2	11.8
Upper quartile →	6.0	10.4
	5.6	8.7
	5.2	5.1
	5.0	2.1
Lower quartile →	4.5	1.4
	3.7	1.2
Median		5.1
Interquartile range	1.5	

7. Study figure 7, which shows the results the results for the flow of water in two different rivers over 7 days in rank order.

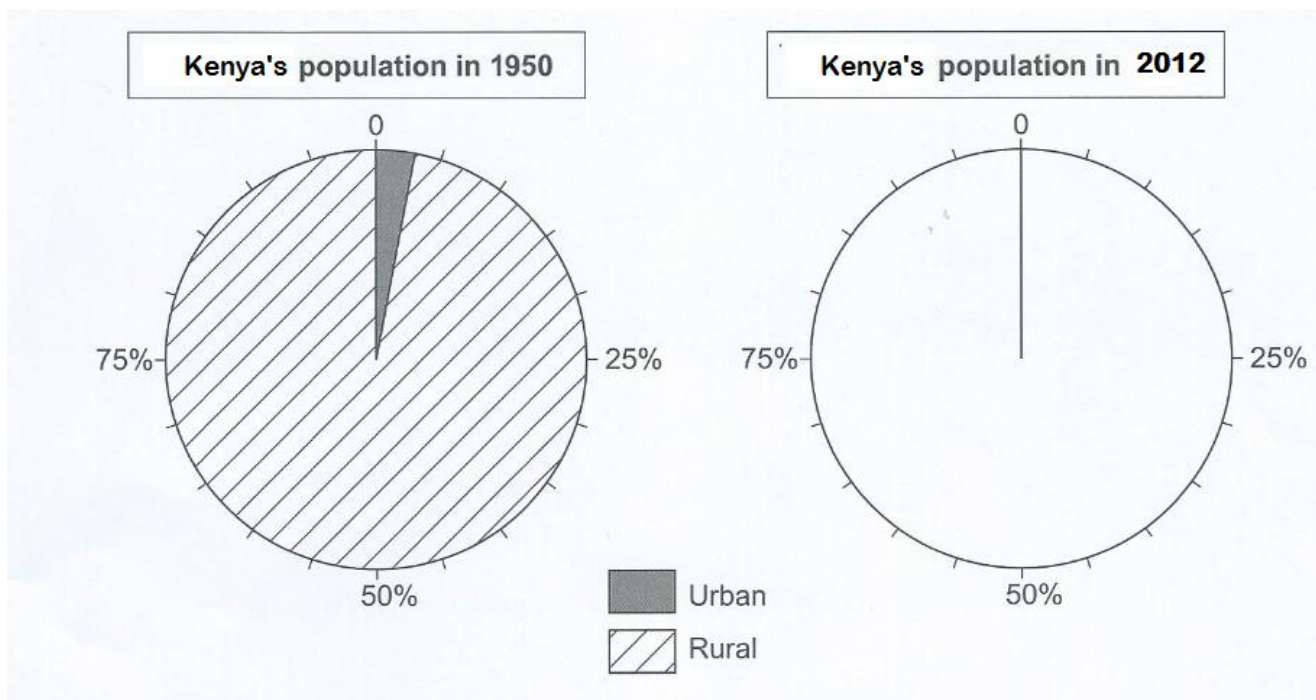
7.1 Complete the table by calculating the median for River A (1)

7.2 Complete the table by calculating the interquartile range for River B (1)

7.3 Suggest why median and interquartile values are useful when comparing data such as that shown in **Figure 7**.

[4 marks]

8. The pie chart below shows Kenya’s urban and Rural population in 1950.



8.1 Complete the pie chart for 2012 using the following figures and the key provided. (2)

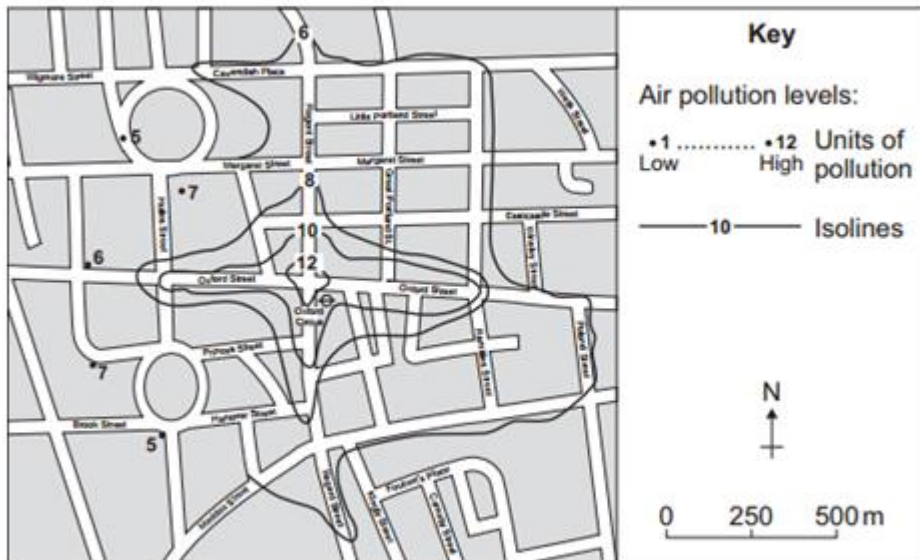
% of the population in Kenya living in urban areas	24%
% of the population in Kenya living in rural areas	76%

8.2 Compare Kenya's population in 1950 with that of 2012.

(4)

- 9 Study **Figure 9**; an isoline map of air pollution levels. The map was produced for a GCSE Controlled Assessment investigation on traffic pollution levels in Central London.

Figure 9

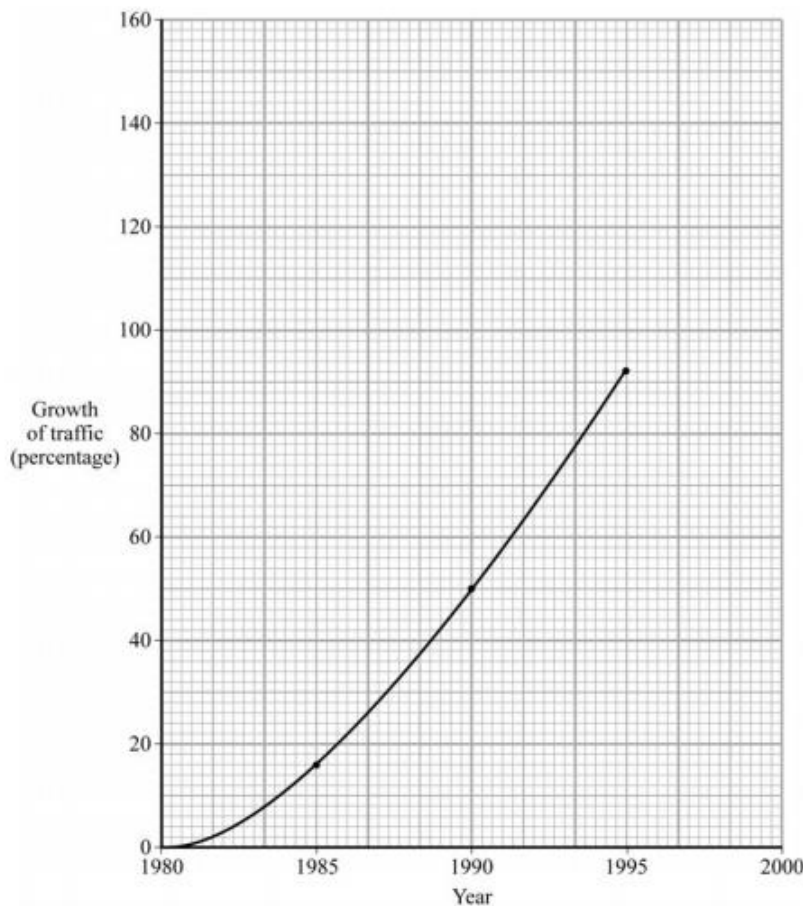


- 9.1 Complete the isoline for air pollution level 6 on **figure 9**.

(2 marks)

10. Study figure 10, which shows the growth of traffic in Cambridge, a large city in the UK.

Figure 10



10.1. Complete the graph by plotting the 2000 figure of 145%. (1 mark)

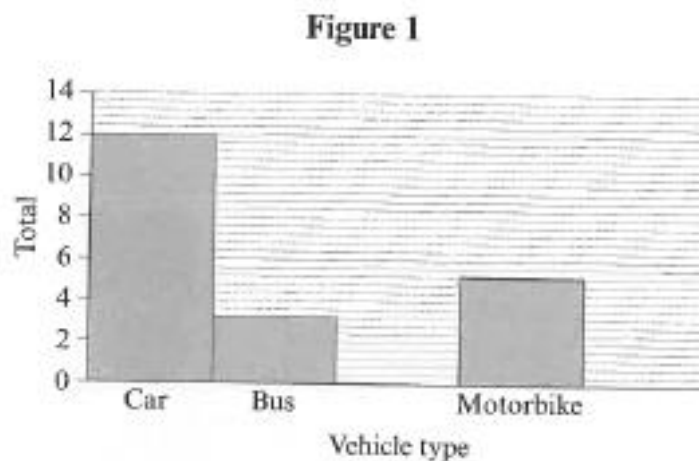
10.2 What was the percentage growth between 1990 and 2000? _____% (1 mark)

10.3 How long did it take for the amount of traffic in Cambridge to increase by 100%? _____ (1 mark)

11.

Study **Figure 1**, a graph showing the results of a three-minute traffic survey completed by a GCSE class.

Lorry	6
Van	4



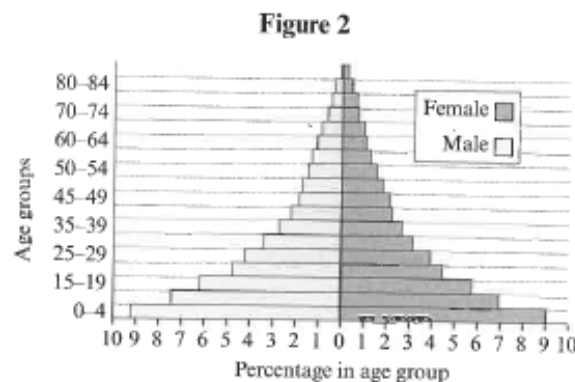
(a) Complete the graph in **Figure 1** using the data in the table.

(2 marks)

(b) Calculate how many vehicles there were in total.

(1 mark)

12. Study **Figure 2**, a graph showing the population structure of a country.



(a) State the correct term for the type of graph shown in **Figure 2**.

(1 mark)

(b) Describe the population structure shown in this graph.

The country shown has a high

(2 marks)

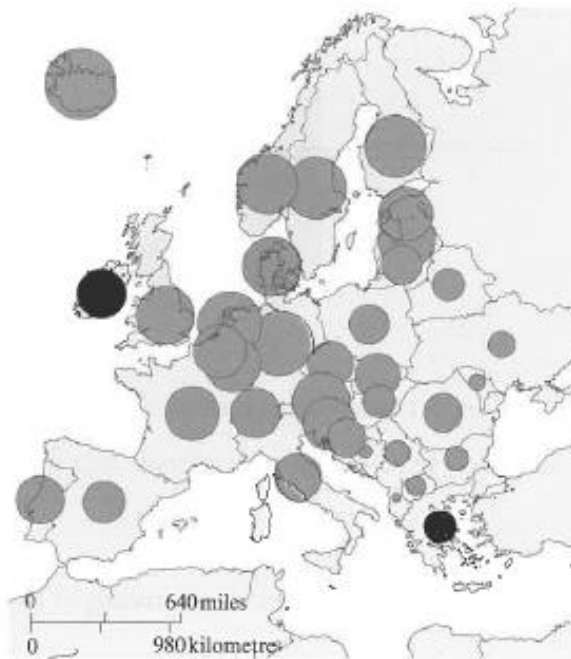
(c) One student decides to present the traffic data in **Figure 1** as a line graph. Suggest **one** reason why this graphical technique is inappropriate for the data collected.

The difference between **discrete** and **continuous** data is important for answering this question correctly.

(2 marks)

Study **Figure 1**, which shows internet users in European countries in 2008.

Figure 1



- (a) State the correct term for the graphical method shown in **Figure 1**.

Proportional means that two or more things change at the same rate.

(1 mark)

Guided

- (b) Suggest **one** advantage and **one** disadvantage of using this method to present information.

Advantage: The graphic representation makes initial comparison between data very straightforward.

Disadvantage:

.....

.....

.....

(2 marks)

- 2 Which **one** of the following graphical methods would be most appropriate for graphing movement from an origin to a destination?

- A Desire line map ☐
- B Isoline graph ☐
- C Dot map ☐
- D Dispersion graph ☐

(1 mark)

Answers:

Question 1:

5.8 Mauritania

5.9 South-West

5.10 300km

5.11 Peru

5.12 South East

5.13 360km

Question 2:

2.1 One mark for the correct answer: B 669421. No credit if two or more answers shaded.

2.2 One mark for the correct answer: B 2.4 km. No credit if two or more answers shaded

2.3 Accept reference to the effect of:

- direction of dominant waves (1)
- differences in offshore gradient (1)
- differences in rock type and gradient, eg some rocks are stronger than others resisting wave attack (1)
- structural differences, eg faulting and jointed structures (1).

Answers must apply understanding of coastal factors to interpret the resource.

No credit for description of the coastal features or for explanations relating to different types of waves.

AO3 = 1 mark

2.4 One mark for the correct answer: B North west. No credit if two or more answers are shaded.

2.5 The process only has to be named. There is no requirement to explain or describe the process. Likely to state hydraulic power (action) (1) or abrasion (corrasion) (1). Allow solution or corrosion. No credit for attrition.

AO1 = 1 mark

Question 3:

3.1 0379

3.2 Nature reserve

3.3. 055825

3.4 029789

3.5 125m

3.6 200-125=75m

3.7 2km

3.8 Durlston Head and Peveril point

3.9. There is a wide variety of evidence including the hotels, the caravan sites, the campsites.

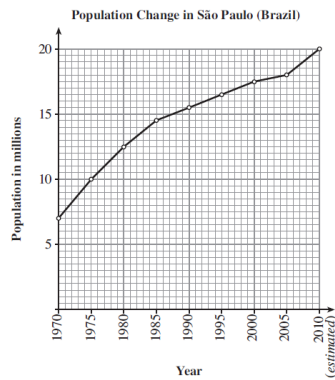
3.10 Sketch map- should include all the features and be representative of the area.

3.11 Aerial

3.12 South

Question 4:

4.2 One mark for correct plot. The line must be complete.



4.2 One mark for trend. One mark for correct reference for figures.

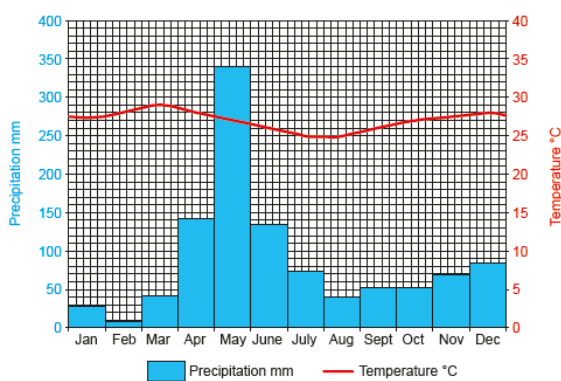
- **Examples**

Trend – Increase (1) steep rise 1970 – 1985 / steady rise 1985 – 2005 / steep rise 2005 - 2010 (1).

Figures: 7 million in 1970 to 18 million in 2005. (1) Change of 11 million (1)

Increase of 11 million. (2)

5.1 one mark for correctly completed line graph- as shown below and one mark for correctly completed bar graph- as shown below:



- 5.2 1,063mm
- 5.3 $340 - 10 = 330\text{mm}$
- 5.4 26.96
- 5.5. $(27 + 27.5) / 2 = 27.25$ (as an even number of values)
- 5.6 28
- 5.7 one mark for pattern: precipitation varies throughout the year (1)/ precipitation fluctuates throughout the year. Second mark for data: May receives the highest rainfall at 330mm (1) and February is the lowest at 10mm (1).

Question 6:

- First mark for pattern- the temperature has increased over time (1)/ temperature has fluctuated over time but there has been an overall increase.
- Data: temperature increased from 12.5°C to its peak at 16.3°C .
- Anomaly: 1984 shows a big dip in temperatures to 13.9°C , this would not be expected. Or other anomaly.

Question 7:

7.1 Median 5.2

7.2 10.4 – 1.4 = 9. AO4 – 1 mark

Level	Marks	Description
2 (Clear)	3-4	AO3 – Demonstrates clear application of knowledge and understanding when analysing the usefulness of median and interquartile values when comparing data. AO4 – Clear reference to specific data such as that shown in Figure 7.
1 (Basic)	1-2	AO3 – Demonstrates limited application of knowledge and understanding when analysing the usefulness of median and interquartile values when comparing data. AO4 – Basic reference to specific data such as that shown in Figure 7.
	0	No relevant content

Indicative content

Median

- Provides useful summary of mixed data
- Measure of central tendency
- Median in both cases very similar

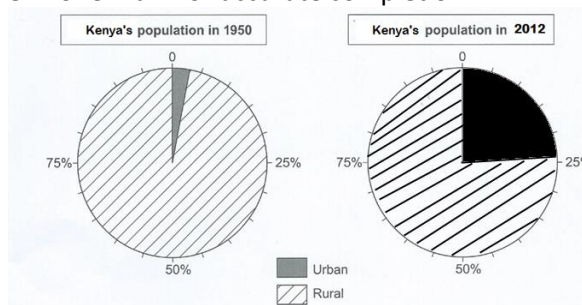
Interquartile range

- Understanding of range
- Compare central tendency with spread around central figure
- Idea about clustering/spread/variation
- Greater range between River A and River B even though median very similar

AO3 – 2 marks AO4 – 2 marks

Question 8:

8.1 one mark for accurate completion



8.2 possible mark worthy comments are:

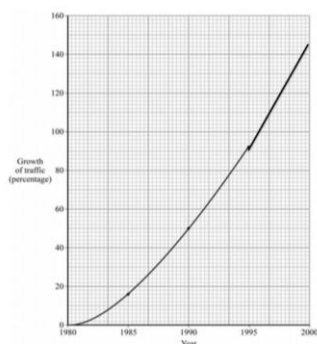
- ✓ There has been an increase in the urban population by 20% or from 4% to 24 % (1)
- ✓ This is because pull factors are attracting increasing numbers of people to cities, in the hope of a better quality of life (1)
- ✓ There has been a decrease in rural population from 96% to 76% or by 20% (1)
- ✓ This is because poor quality of life in rural areas, and lack of employment opportunities (push factors) are encouraging people around the world to leave rural areas (1)

Question 9:

Completed line – 1 mark for going through the 6 and 1 mark for the two occasions where the line needs to go between 5 and 7. Maximum 1 if the candidate's line does not join up at both ends to the existing 6 line.

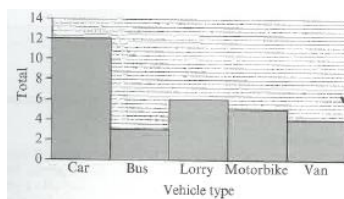
Question 10:

10.1 one mark for correctly plotted and completed line graph- as shown below:



- 10.2. 95%
- 10.3. 16 years.

Question 11



(b) 30 vehicles: 12 cars, 3 buses, 6 lorries, 4 vans, 5 motorbikes

Question 12

(a) Population pyramid (also known as an age-structure graph or a specific form of divided bar graph)

(b) The country shown has a high birth rate; the base of the pyramid is very wide, and there are lots of children in the 0–4 age band. The top of pyramid is very narrow, indicating a high death rate. Other points: there is a youthful population – the pyramid narrows considerably above the 30–34 age band; life expectancy in men is lower than in women.

(c) Line graphs are used to show trends or patterns, or to see if there is a correlation between two sets of data. The traffic data cannot be shown as a line graph as it does not show a change over time.

Question 13

- 1 (a) Proportional circles/symbols
 (b) *Example Advantage:* The graphic representation makes initial comparison between data very straightforward. *Other options:* easy to understand; give a strong visual impression of the data. *Disadvantage:* Unless figures are also given, proportional circles do not provide precise values of the data. *Other options:* if data are presented close together the proportional circles can overlap and make the data less clear; if two circles are close in size it is not easy to tell which is the larger and which the smaller.
- 2 A Desire line map