

Interpretation of Data – GCSE Statistics**1. No.6**

Quin is a window cleaner who works Monday to Friday each week.

Each day he has a list of **20** houses whose windows he plans to clean.

The table shows the risk, for different types of weather, that a house owner will **not** want their windows cleaning.

Weather	Risk
Sunny	0%
Light Rain	50%
Heavy Rain	90%

(a) On Monday there is **light rain**.

Work out the number of houses whose windows Quin should expect to clean.

[1 mark]

Answer _____

(b) On Tuesday there is **heavy rain**.

Show that he should expect to clean the windows of only **2** houses that day.

[1 mark]

- (c) By the end of Friday, Quin expected to clean the windows of 54 houses.

Complete the table to show **one** possibility for the remaining weather that week.

[2 marks]

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Weather	Light rain	Heavy rain			

- (d) That week, the mean number of houses whose windows Quin actually cleaned per day was 12

How does this compare with the expected number given in **part (c)**?

[2 marks]

- (e) Give a possible reason for the difference between the theoretical and actual results.

[1 mark]

2. No.11

This diagram was produced after the Winter Olympics of 2018.



Source: BBC

(a) Make **three** criticisms of the diagram.**[3 marks]**

Criticism 1 _____

Criticism 2 _____

Criticism 3 _____

- (b) Name a different diagram which would show the data in a more appropriate way.

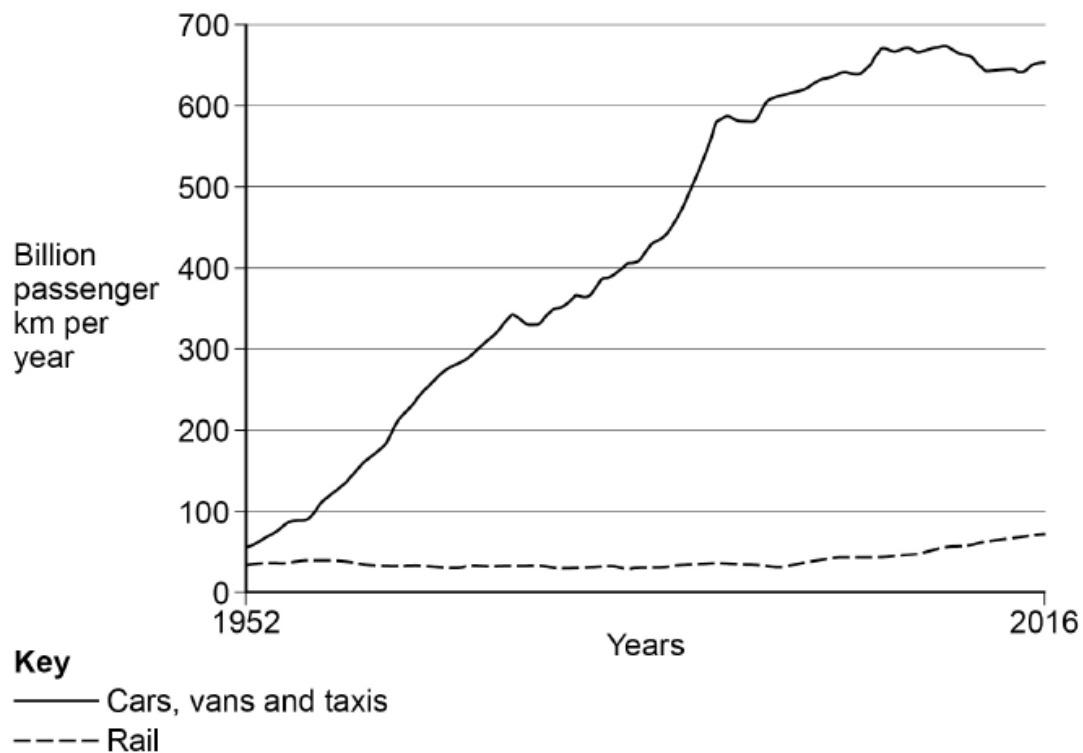
[1 mark]

Answer _____

3. No.15(c-d)

- (c) Charlie hears on the news that more people than ever are using cars to travel and roads are getting busier.

She sees this graph on a news website.



Source: adapted from Department for Transport

Comment, with a reason, whether or not the graph confirms that,

- (c) (i) more people are using their cars to travel.

[1 mark]

(c) (ii) roads are getting busier.

[1 mark]

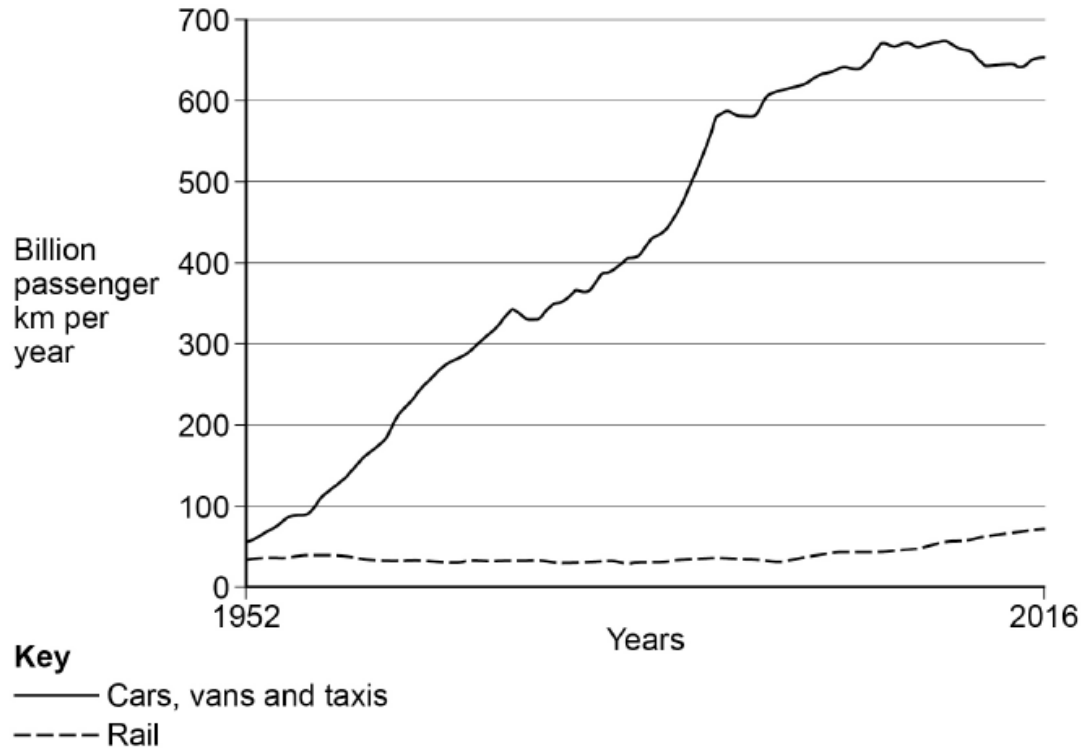
(d) Using the graph on page 23, make **two** statements about rail travel over the years.

[2 marks]

4. No.8c

(c) Charlie hears on the news that more people than ever are using cars to travel and roads are getting busier.

She sees this graph on a news website.



Source: adapted from Department for Transport

Comment, with a reason, whether or not the graph confirms that,

- (c) (i) more people are using their cars to travel.

[1 mark]

- (c) (ii) roads are getting busier.

[1 mark]

5. No.11

The table shows some index numbers relating to the coal industry in the UK between 1910 and 1970 (base year = 1910).

Year	Index numbers	
	Amount of coal produced	Number of mining jobs
1910	100	100
1930	92.0	
1950	83.3	65.9
1970	54.9	27.4

Source: adapted from National Coal Mining Museum for England

- (a) The number of mining jobs decreased from 1 049 000 in 1910 to 914 000 in 1930.

Complete the table.

[2 marks]

- (b) (i) Work out the percentage decrease in the **amount of coal produced** in the UK between 1910 and 1970.

[1 mark]

Answer _____ %

- (b) (ii)** Compare the percentage decrease in the amount of coal produced between 1910 and 1970 with the percentage decrease in the number of mining jobs.

[1 mark]

- (c)** The UK produced 220 million tons of coal in 1950.

Calculate the amount of coal produced in the UK in 1910.

[2 marks]

Answer _____ million tons

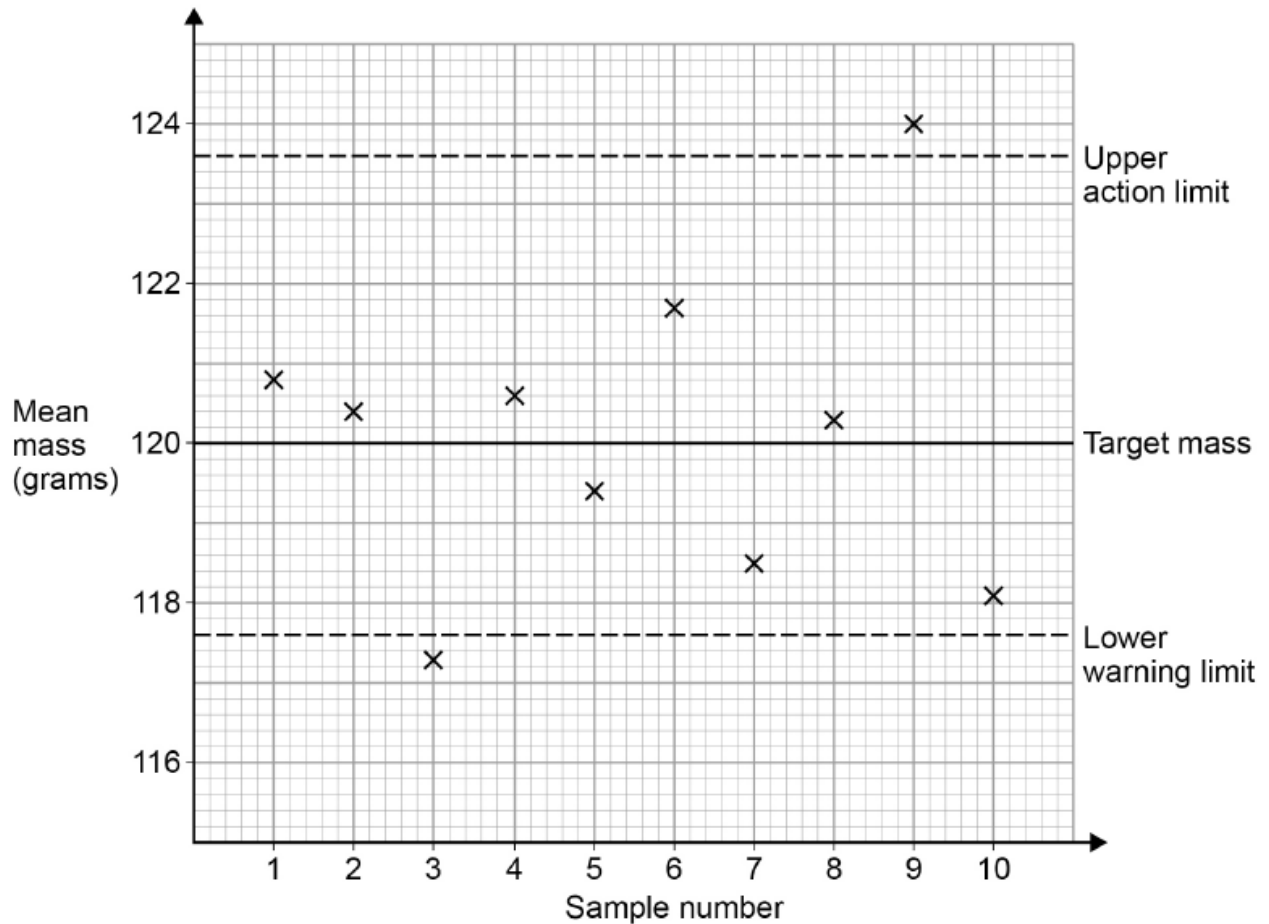
6. No.14

A machine fills packets with sweets.

The target mass for the bag of sweets is 120 grams.

Samples of packets are taken from the machine each day to check the machine is working correctly.

The sample means are shown on the control chart along with the upper action limit and the lower warning limit.



- (a) The limit lines are symmetrical about the target mass.

Complete the chart by drawing in the lower action limit and the upper warning limit.

[2 marks]

- (b) After one of the samples had been taken the machine operator took an additional sample of sweets to check the machine was working correctly.

After which sample did this happen?

[1 mark]

Answer _____

- (c) Discuss the significance of the 9th sample mean.

What should happen to the machine after this sample was taken?

[2 marks]

7. No.4

The table shows the number and the gender of teachers at three schools.

	Bushfield Primary School	Ridge High School	Lindsey Academy
Number of males	2	36	20
Number of females	12	24	6

- (a) How many teachers are at **Ridge High School**?

[1 mark]

Answer _____

- (b) What fraction of teachers at **Ridge High School** are male?

Give your answer in its simplest form.

[2 marks]

Answer _____

- (c) Compare the **total number** of teachers in each school.

[2 marks]

- (d) Compare the proportions of each **gender** of teacher in each school.
You **must** support your comparison with appropriate calculations.

[3 marks]

8. No.5

The table shows information about sales of phones worldwide in 2017.

Make	Number of sales (millions)	Market share (%)
Samsung	318.3	21.7
Apple	215.8	
Huawei	153.1	10.4
OPPO	111.8	7.6
Xiaomi	92.4	6.3
Others	577.7	39.3

- (a) Which company had sales of just over half of those of Apple?

[1 mark]

Answer _____

- (b) Calculate Apple's market share to one decimal place.

[2 marks]

Answer _____ %

- (c) Wang says,

"The top 3 companies in the table have over 50% of the sales of phones."

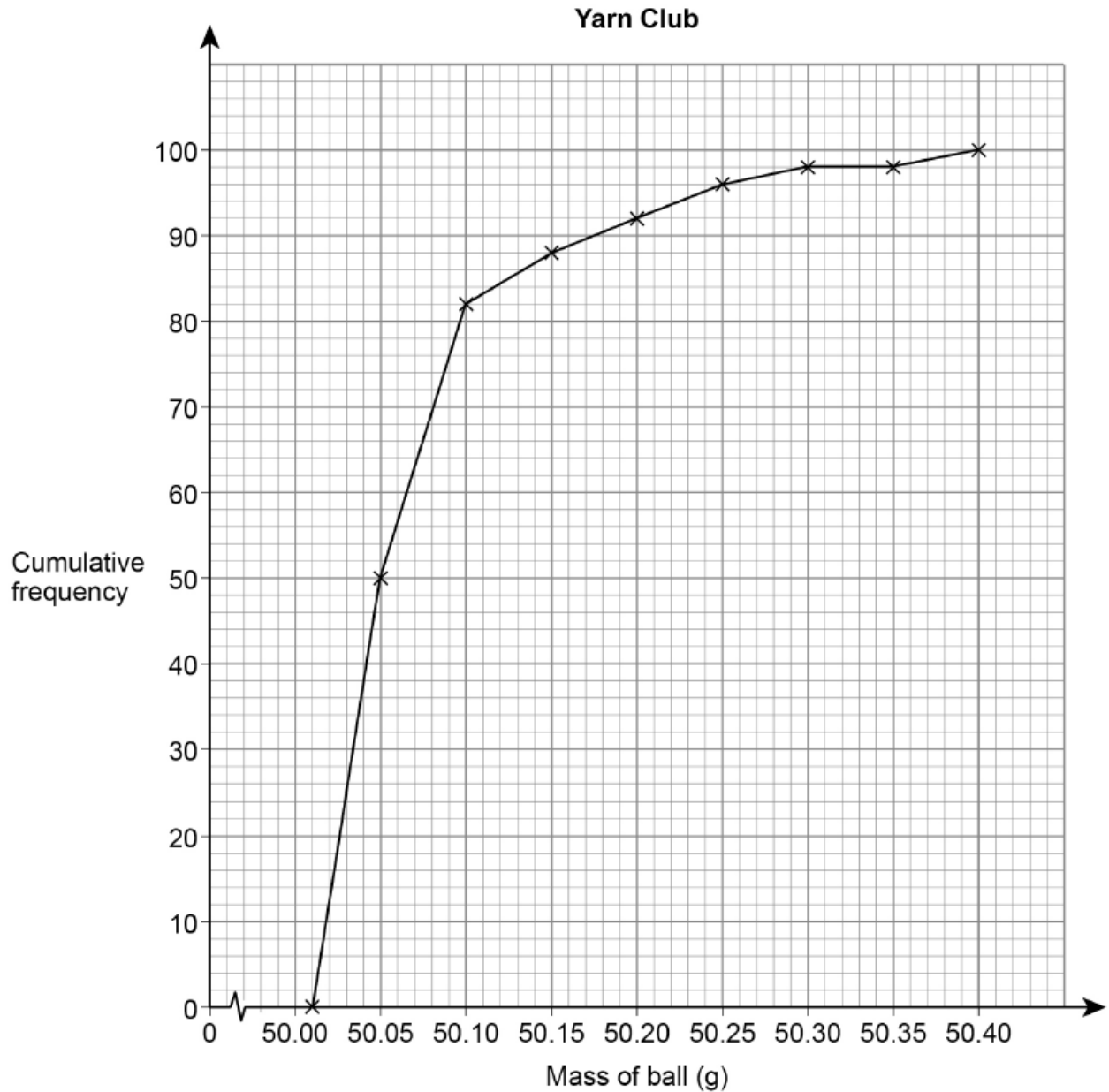
Comment on Wang's statement, supporting your answer with evidence.

[2 marks]

9. No.8

Wool is sold as 50-gram balls by two online suppliers, 'Yarn Club' and 'Lydia's Wool'. Samples from both suppliers are tested to ensure the balls have a mass of at least 50 grams.

The cumulative frequency graph shows information from the 'Yarn Club' sample.



- (a) Write down, to one decimal place, the mass of the heaviest ball of wool from this sample.
[1 mark]

Answer _____ grams

- (b) Are all the balls in this sample above the advertised mass?
Give a reason for your answer.

[1 mark]

- (c) Here are some statistics about the sample of wool from 'Lydia's Wool'

- lowest value 49.98 grams
- lower quartile 50.02 grams
- median 50.07 grams
- upper quartile 50.11 grams
- highest value 50.57 grams

- (c) (i) Are all the balls in this sample above the advertised mass?
Give a reason for your answer.

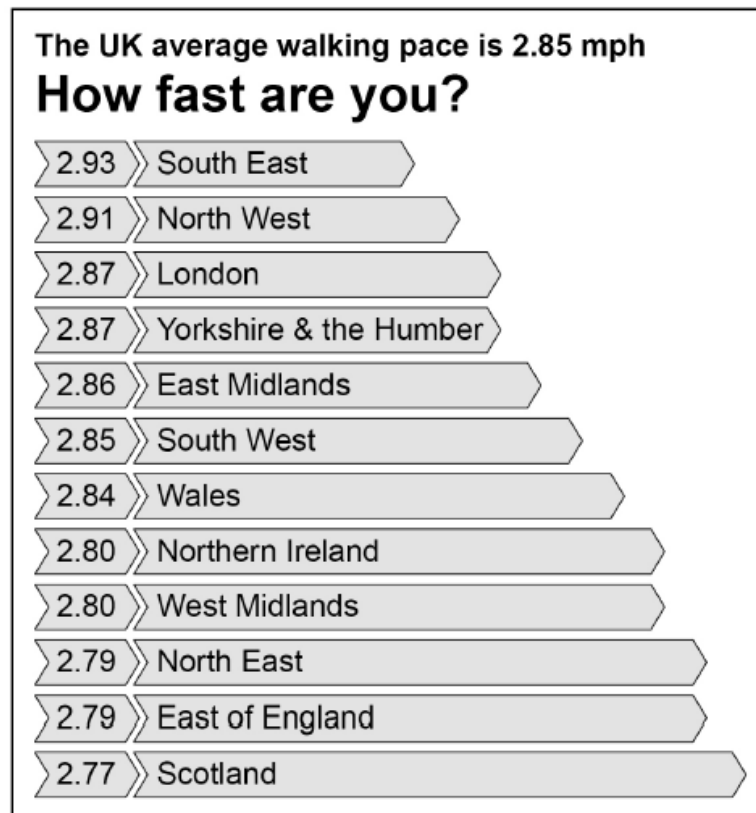
[1 mark]

(c) (ii) Compare statistically the masses of the samples from the two suppliers.

[6 marks]

10. No.6

Samira records the average walking speed, in miles per hour (mph), of shoppers in different regions of the UK. The diagram shows her results.



- (a) List the regions in the UK where the walking speed is more than 0.05 mph faster than the UK average.

[1 mark]

Answer _____

- (b) Give **two** reasons why the diagram is misleading.

[2 marks]

Reason 1 _____

Reason 2

- (c) A manager in a shopping centre measures the walking speed (in mph) of a random sample of shoppers in June and a random sample of shoppers in December.

The walking speeds of 25 shoppers in June are shown in the stem-and-leaf diagram.

June											December									
							9	8	0											
				7	7	6	4	2	1											
	9	8	8	7	6	5	5	2	2											
			7	6	4	3	3	1	3											
					5	4	1	0	4											

Key: 8 | 0 | 7 represents a speed of 0.8 mph in June
and a speed of 0.7 mph in December

- (c) (i) The speeds (in mph) of 25 shoppers in December are,

1.2 3.4 0.9 1.9 2.4 2.7 1.6 3.2 2.1 0.7
1.0 2.2 2.5 1.8 4.1 1.7 2.6 1.8 3.2 1.3
2.5 0.7 3.1 2.2 1.4

Complete the back to back stem-and-leaf diagram above to show the speeds of shoppers in December.

[3 marks]

- (c) (ii) Without further calculation, make a comparison of the average walking speeds of shoppers in June and December.

[1 mark]

- (c) (iii) Give a possible reason to explain the difference in average walking speeds in June and December.

[1 mark]

11. No.13

Seb and Laura are studying for a gardening qualification.

Their overall mark is found as the **weighted average** of their marks in,

coursework	weight = 20%
a written examination	weight = 35%
a practical examination	weight = 45%

(a) Seb's marks are shown in the table.

Coursework	Written examination	Practical examination
85%	54%	70%

Calculate Seb's overall mark for the course.

[3 marks]

Answer _____ %

- (b) Students need an overall mark of 60% to pass the qualification.

Laura scores,

40% in her coursework

32% in her written examination.

She has **not** yet taken the practical examination.

Can she still pass the qualification?

Tick (✓) one box.

Yes

☐

No

☐

You **must** show your working.

[3 marks]
