

Statistics GCSE**Paper 2**

2025

Edexcel Higher

Variant 2

1ST0/1H

Instructions

- Write all answers in the spaces provided.
- Answer all questions.
- You must show all your working.
- There may not be enough space to show all your working out.

Information

- This is a practise paper to aid your revision for your exams.
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Advice

- You can get support for all these questions at our website: www.statsgcse.com
- This paper and more are available on our site with questions that change subtly after each attempt.
- Good luck!

1 In a library, 60% of members are adults and 40% are children.
Priya and Thomas plan to conduct a feedback survey.

Priya decides to use simple random sampling to select 100 participants.
She uses the library membership database as a sampling frame, assigning a number to each participant.
She then generates 100 random numbers and selects her sample accordingly.

Thomas decides to use quota sampling to collect a sample of 100 participants.
He plans to sit at the library's exit until 60 adults and 40 children have been interviewed.

(a) Give two reasons why Priya's method may **not** produce a sample of 100 participants.

(2 marks)

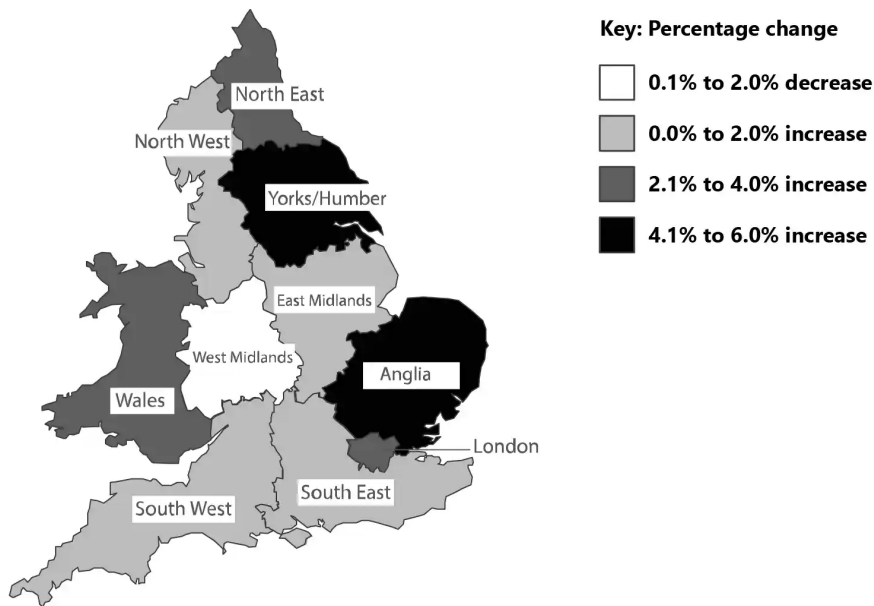
(b) Give **two** advantages of quota sampling.

(2 marks)

(c) Explain why the quota sample used by Thomas is not a random sample.

(1 mark)

2 The map below shows the percentage change in domestic tourist visits across different regions of England and Wales between 2011 and 2012.



(a) Write down the percentage change in domestic tourist visits between 2011 and 2012 in South East.

(1 mark)

(b) There are 10 regions shown.
Find the number of regions that the domestic tourist visits **increased**.

(1 mark)

(c) Priscilla states that domestic tourism in England and Wales increased overall between 2011 and 2012.

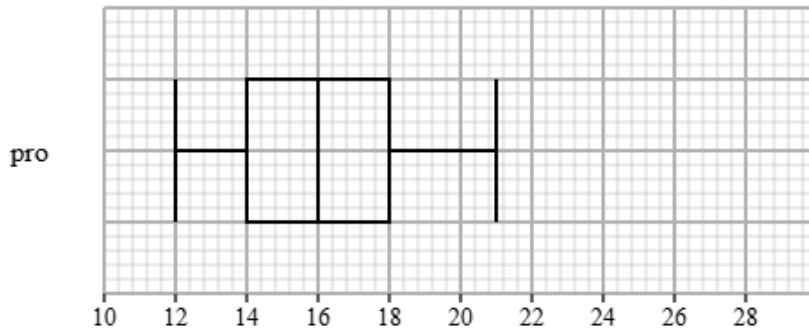
Explain why this may not be the case.

(1 mark)

(d) State the statistical name for the type of map shown.

(1 mark)

- 3 Liam recorded the completion times for pro and beginner runners in a 5K race. Both groups ran the same course. The box plot presents data on the completion times for the pro runners.

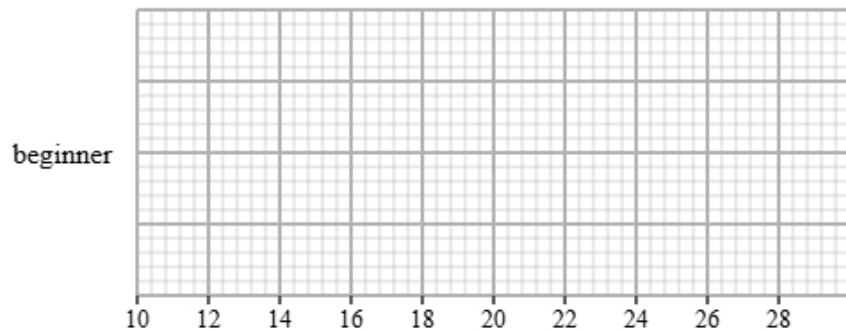


The table gives information about the completion times for the beginner runners.

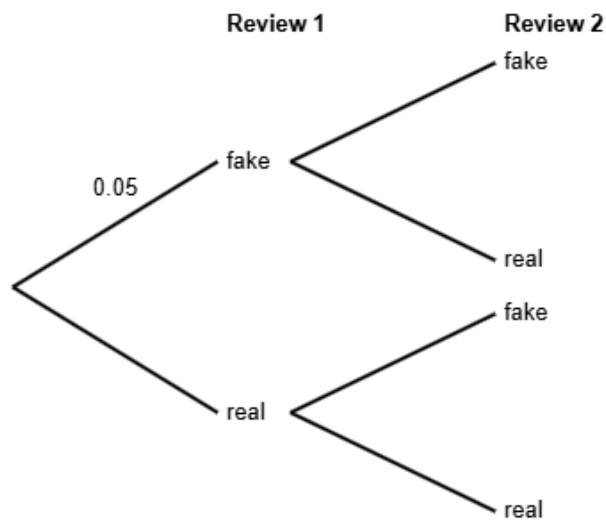
Least tall	Lower quartile	Median	Upper quartile	Most tall
17	19	20	24	30

- (a) Draw a box plot for the completion times for the beginner runners.

(2 marks)



- 4** Research suggests that 5% of online product reviews are fake.
 All other reviews are genuine.
 Emma is reading two reviews for a product.
 She does not know if each review is fake or real.



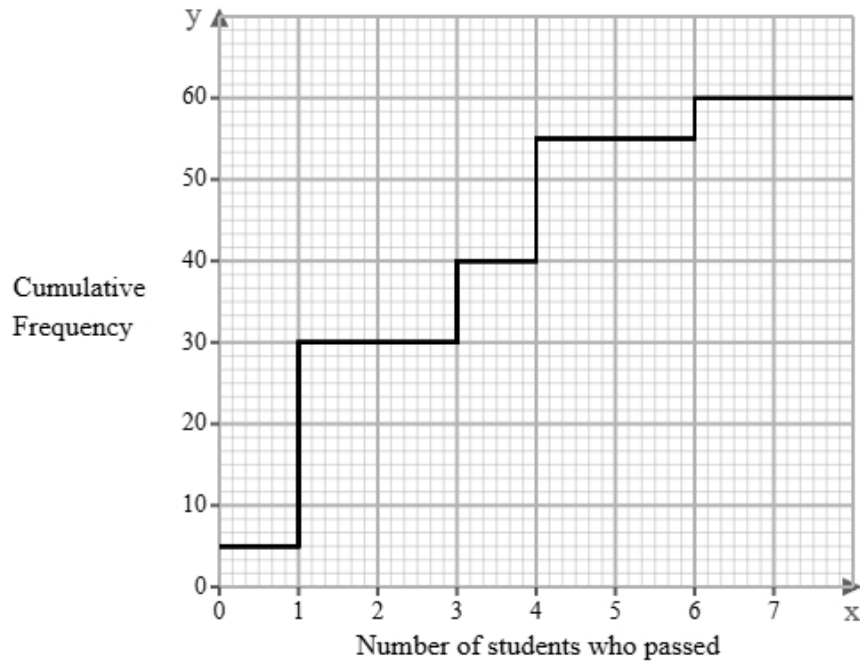
- (a)** Complete the probability tree diagram.

(2 marks)

- (b)** Find the probability that both of Emma's reviews are real.

(2 marks)

- 5 The cumulative frequency step polygon shows information about the number of students who passed a daily maths quiz over 60 days.



- (a) Give a reason why a cumulative frequency step polygon has been used to display this data.

(1 mark)

- (b) Find the mode of the number of students who passed a daily maths quiz.

(1 mark)

(c) Find the number of days where there were:

- i) exactly 5 students who passed.
- ii) more than 5 students who passed.

(3 marks)

i) Exactly 5 students who passed: _____

ii) More than 5 students who passed: _____

(d) In 40 days fewer than x students passed.

Find the value of x

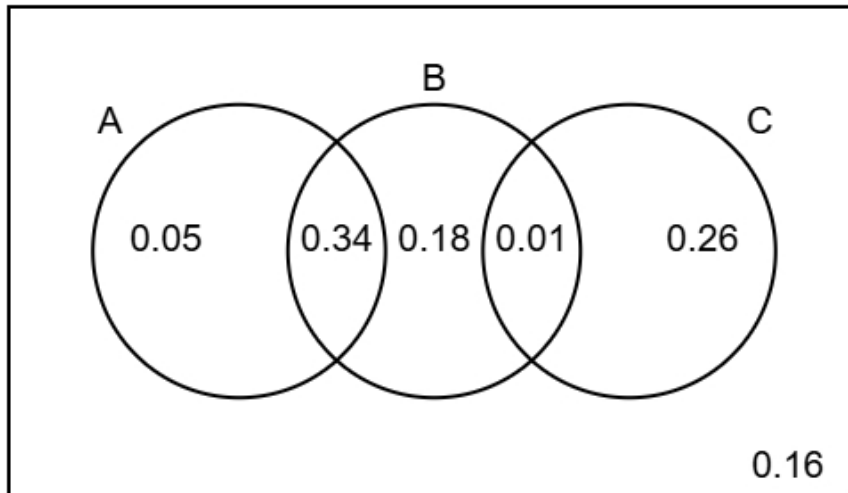
(1 mark)

(e) Peter believes the interquartile range of the number of students who passed is 8.

Explain why the interquartile range for this data cannot be 8.

(1 mark)

6 The Venn diagram illustrates the probabilities associated with events A, B, and C.



(a) Identify the **two** events that are mutually exclusive, giving a reason for your answer.

(2 marks)

(b) Find $P(B)$

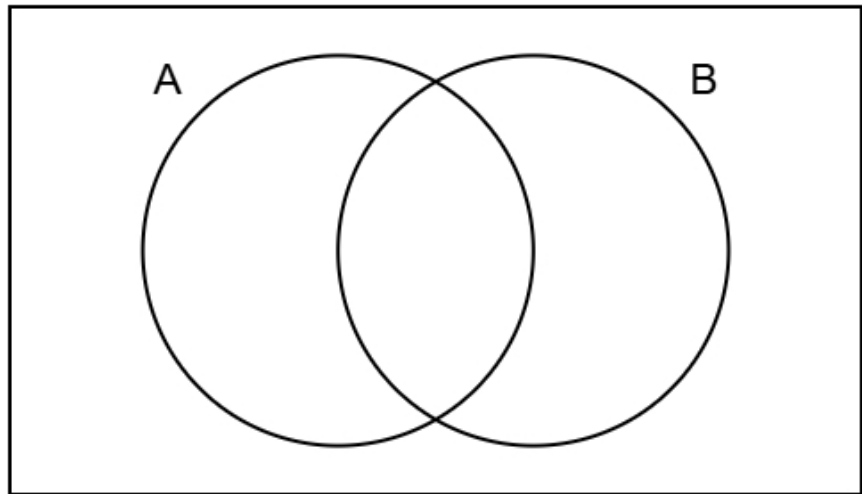
(1 mark)

(c) Find $P(A \text{ or } C)$

(2 marks)

(d) Complete the Venn diagram to show **only** the probabilities for events A and B.

(2 marks)



7 Lucas is researching customer spend and average number of daily customers for 10 shops.

(a) Suggest a diagram that Lucas could draw to determine if there is a relationship between customer spend and average number of daily customers for the 10 shops.

(1 mark)

- (b) i) Calculate Spearman's rank correlation coefficient from the table.
 ii) Interpret your answer in the context of Lucas's research. You will need to refer to the effects of any outliers.

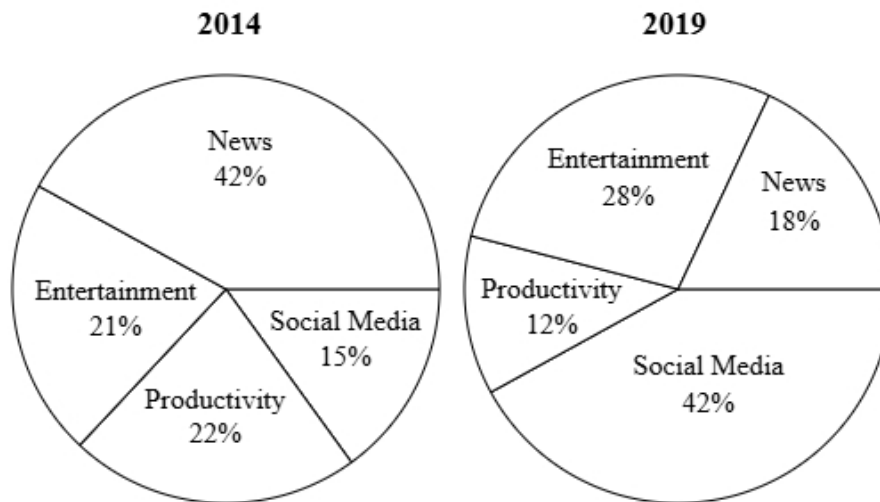
(5 marks)

Shop	Daily Customers	Daily Customers Rank	Customer Spend Rank	d	d ²
Appleton Books	84	8	2	6	36
Baker's Treat	136	3	10	-7	49
Caramel Cafe	121	5	4	1	1
Daisy's Boutique	68	9	3	6	36
Eco Gadgets	57	10	1		
Fashion Hub	125	4	5		
Gourmet Delights	142	2	9		
Happy Hands	96	6	7		
Posh Pets	92	7	6		
Silver Spoon	150	1	8		

(c) Discuss whether Lucas should have used Pearson's product moment correlation coefficient instead of Spearman's rank correlation coefficient to measure the correlation.

(3 marks)

8 The pie charts show a country's mobile phone app downloads in 2014 and 2019.



(a) Explain why the pie charts do not show a decrease in news apps downloads in 2019 compared to 2014.

(1 mark)

(b) The number of news app downloads in 2014 was 1922130.
Find the number of social media app downloads in 2014.

(2 marks)

9 A company produces chocolate chip cookies.

The cookies have a target mass of 60 g.

The company uses quality assurance to monitor the mass of each cookie.

Samples of the cookies are taken from the production line at regular intervals and the mean mass of the cookies in each sample is found.

The sample means should be normally distributed with a mean of 60 g and a standard deviation of 1.2 g.

(a) Find the upper action limit for the sample means for the cookies.

(2 marks)

_____ g

(b) The upper action limit will be set closer to the target mass of 60 g.

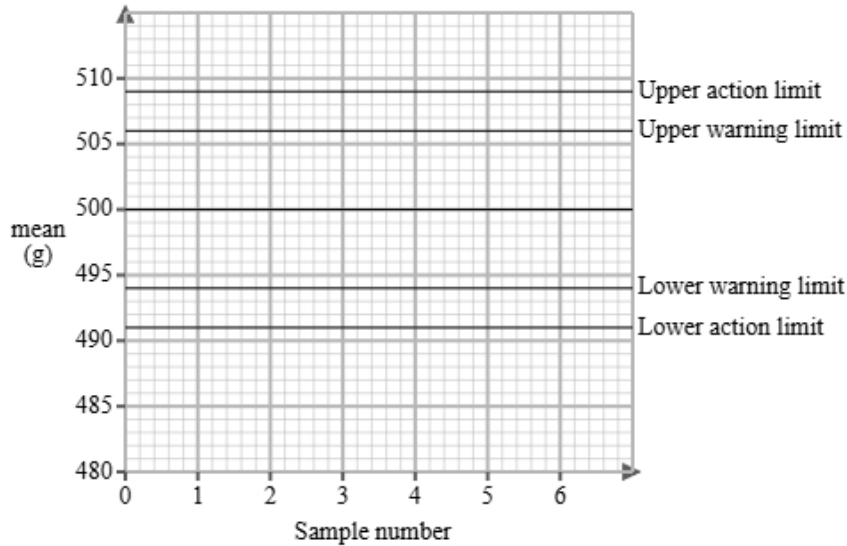
Describe the effect this will have on the frequency of production process stoppages.

(1 mark)

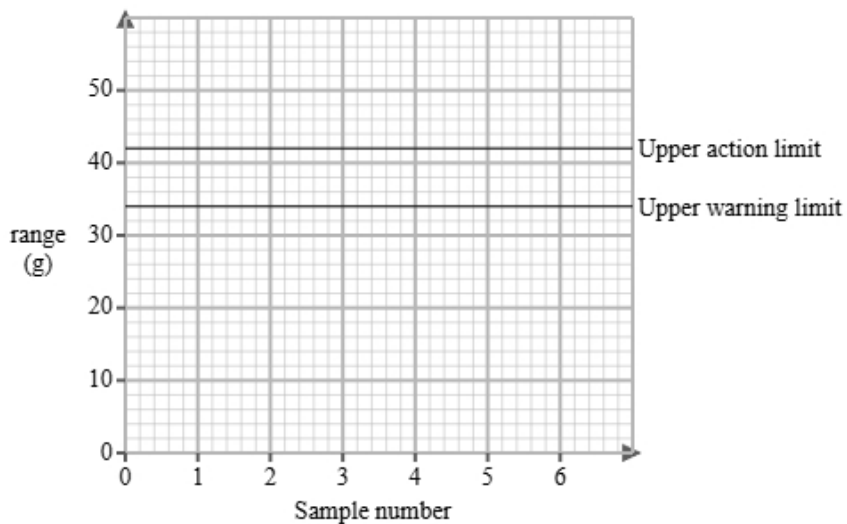
(c) The company also produces sponge cake and uses quality assurance to monitor the mass of each cake.

Here are the control charts for the sample means and for the sample ranges of the masses of the cakes.

Control chart for means



Control chart for ranges



A sample is taken and is found to have a mean of 496 g and a range of 31 g.

Use the sample mean and range to determine what action, if any, needs to be taken.

(2 marks)

10 The reaction times of a group of adult drivers have a mean of 1.4 seconds and a standard deviation of 0.3 seconds.

(a) Mark is adult driver with a standardised score of 0.
Find Mark's reaction time.

(1 mark)

_____ seconds

(b) Priya and Sarah are both adult drivers in the group.
Priya's standardised score for reaction time is 0.8 seconds.
Sarah's standardised score for reaction time is -1.2 seconds.
Priya had a slower reaction time than Sarah.
How much slower is Priya?

(3 marks)

_____ seconds

11 A study took place in Japan to find if there was a relationship between screen time and sleep duration of teenagers.

The researchers found the equations of the regression lines for the relationship between screen time (x hours) and sleep duration (y hours) for male teenagers and female teenagers on school nights and weekend nights.

The table below gives the equations of the regression lines.

	school nights	weekend nights
male teenagers	$y = -0.4x + 7.5$	$y = -0.2x + 8.2$
female teenagers	$y = -0.3x + 7.8$	$y = -0.15x + 8.5$

(a) Interpret in context the figure -0.15 in the regression equation for female teenagers on weekend nights.

(1 mark)

12 A fair coin is tossed 4 times.
The number of heads obtained is recorded.

(a) Identify two conditions needed so that a binomial distribution is a suitable model for the number of heads recorded.

(2 marks)

(b) Calculate the probability, as a fraction, that all 4 of the coins land on heads.

(2 marks)

(c) Calculate the probability, as a fraction, that at least 2 of the coins land on heads.

(3 marks)
