

# Statistics GCSE

## Paper 1

Edexcel Foundation - 2026

Foundation Tier

Variant 1 (same as video)

1ST0/1F

### 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.
- This site, and all that work on it, have no affiliation or relationship with any exam board.
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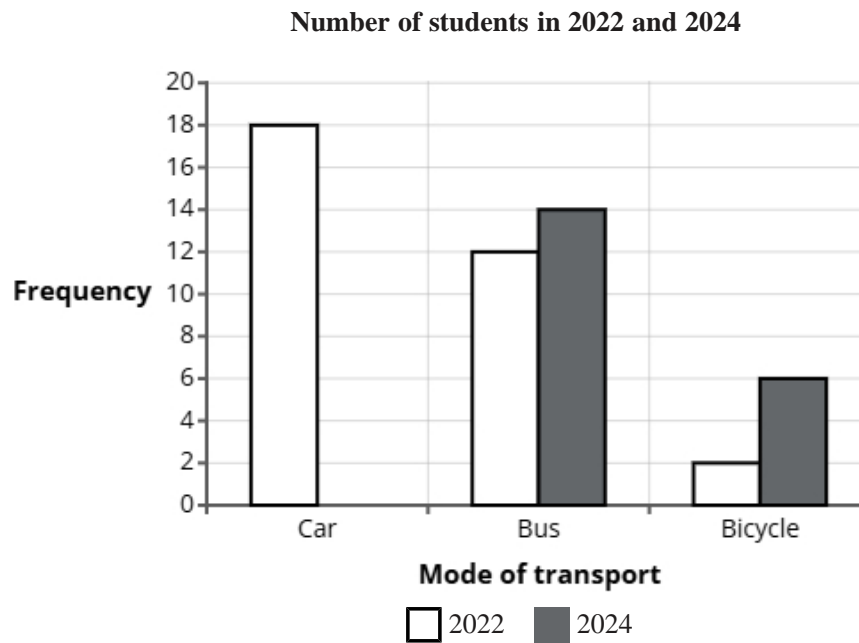
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### Advice

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

- 1 The comparative bar chart compares the number of students who travel to a school by car, bus and bicycle in 2022 and 2024.



In 2024, there were 16 students who travelled to school by car.

- (a) Complete the comparative bar chart for students who travelled by car.

(1 mark)

- (b) Find how many more students travelled by bus than bicycle in 2022.

(2 marks)

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- (c) Compare the number of students who took the car, bus and bicycle in 2022.

(2 marks)

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(d) The data displayed in the comparative bar chart is an example of quantitative data.

Explain what is meant by quantitative data.

(1 mark)

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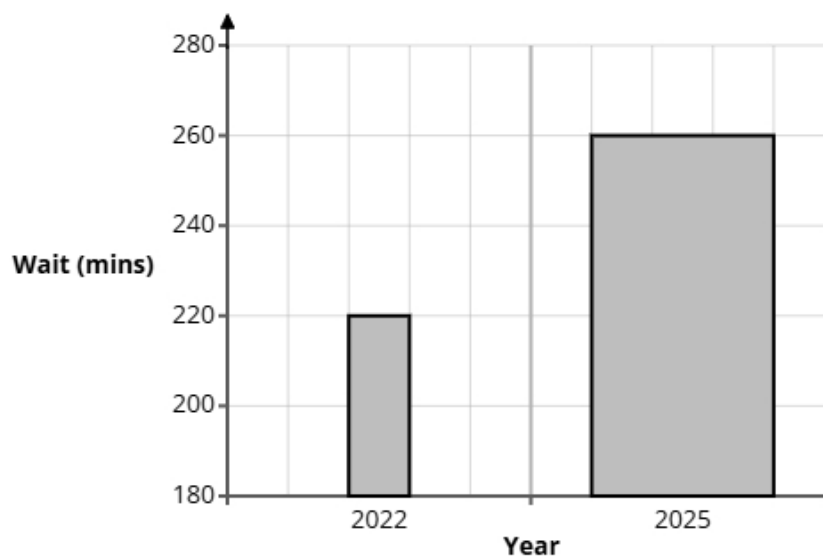
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2 A journalist carried out research into hospital waiting times at a hospital in 2022 and 2025 to highlight concerns about local healthcare.

A bar chart is drawn from the information.



State **two** reasons why the bar chart could be misleading.

(2 marks)

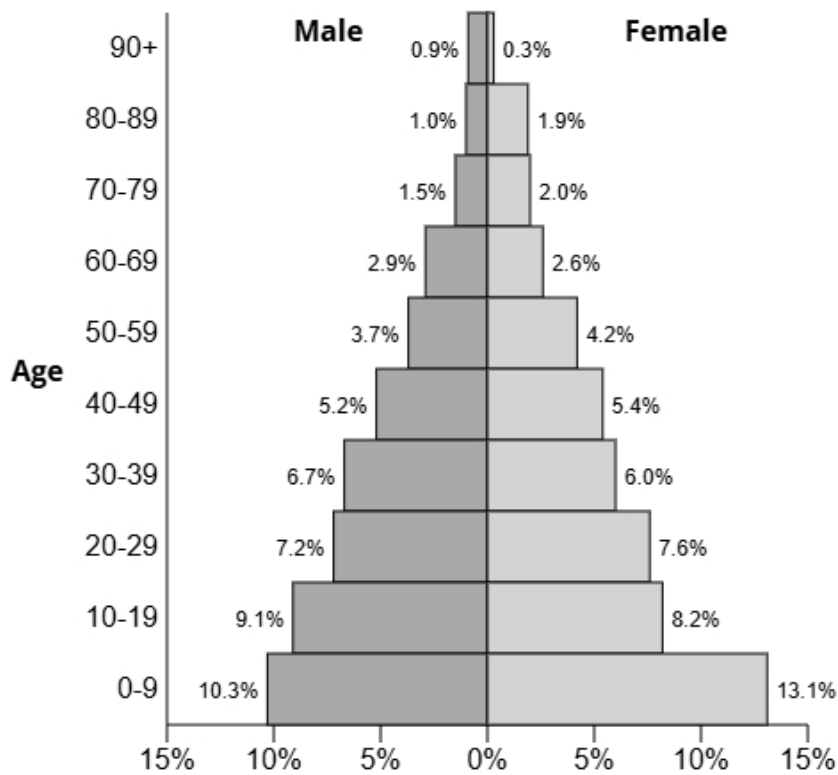
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3 The population pyramid below shows the percentage of males and females in each age group for the town Brackenford.



(a) Write down the percentage of females in the age group 50-59.

(1 mark)

\_\_\_\_\_ %

(b) Find the age group for males that has 6.7% of the population.

(1 mark)

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(c) Find the age group that has 14.8% of the population.

(1 mark)

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(d) Compare the percentage of the population aged 30-59 between males and females.

(1 mark)

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(e) Give a reason why the sum of all the percentages is 99.8% and not 100%.

(1 mark)

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4 A school is considering introducing a new lunch menu.

Daniel is going to conduct a survey to gather opinions from everyone in the school.

Daniel thinks that he should take a sample rather than a census.

(a) Daniel has decided to use the class registers as a sampling frame.

State one problem Daniel may have using the class registers as a sampling frame.

(1 mark)

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**5** The head teacher of a secondary school is reviewing the amount of homework given each week.

The head teacher wants to collect the views of parents and guardians.

She plans to give a questionnaire to parents who attend the next parents' evening and ask them to return it to the school the next day.

**(a)** Describe the meaning of the term 'simple random sample'.

(1 mark)

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**(b)** Assess the head teacher's plan to get the opinions of the parents.

(3 marks)

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**(c)** Here is an open question that the head teacher is considering for the questionnaire.

What do you think about the amount of homework we give each week?

Give one reason why this is not a good question.

(1 mark)

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(d) Design a suitable closed question for the head teacher to use on her questionnaire so that she can decide how much homework students are given each week.

(2 marks)

(e) When the head teacher has designed her questionnaire, she decides to pre-test it by using a pilot survey with a small sample of parents.

Select **two** reasons why she should conduct a pilot survey.

(2 marks)

Select **two** boxes.

- A pilot survey will help identify problems.
- A pilot survey will be cheaper than a survey.
- A pilot survey will include more people.
- A pilot survey will give more accurate data.
- A pilot survey will give an idea of what the results may be.

6 A youth worker wants to find out how much time teenagers spend exercising each week.

She plans to ask a sample of 50 young people at her youth club to record the number of hours they exercise in one week.

Each participant will write down their total exercise time for that week.

Describe one problem the youth worker might face in the statistical enquiry process due to non-response or unexpected results, and explain how she could address this issue.

(2 marks)

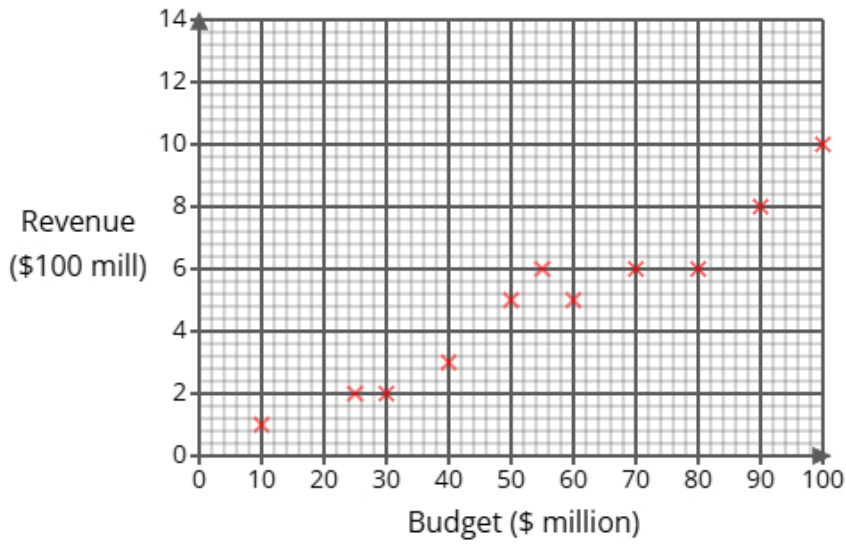
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- 7 Liam gathered data on 11 movies, recording their production budget (in millions of dollars) and total box office revenue (in hundreds of millions). He represented his findings in the scatter diagram below.



- (a) One of the 11 movies has a budget of 55 million.  
For this movie, write down its revenue.

(1 mark)

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- (b) Draw a line of best fit on the scatter diagram.

(1 mark)

- (c) Describe and interpret the type of correlation shown by the scatter diagram.

(3 marks)

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(d) A new movie will be releasing soon with a budget of \$250 million.

Liam is planning on using the line of best fit on the scatter diagram to predict the revenue of the movie.

Explain whether or not it is appropriate to use the line of best fit for this prediction.

(2 marks)

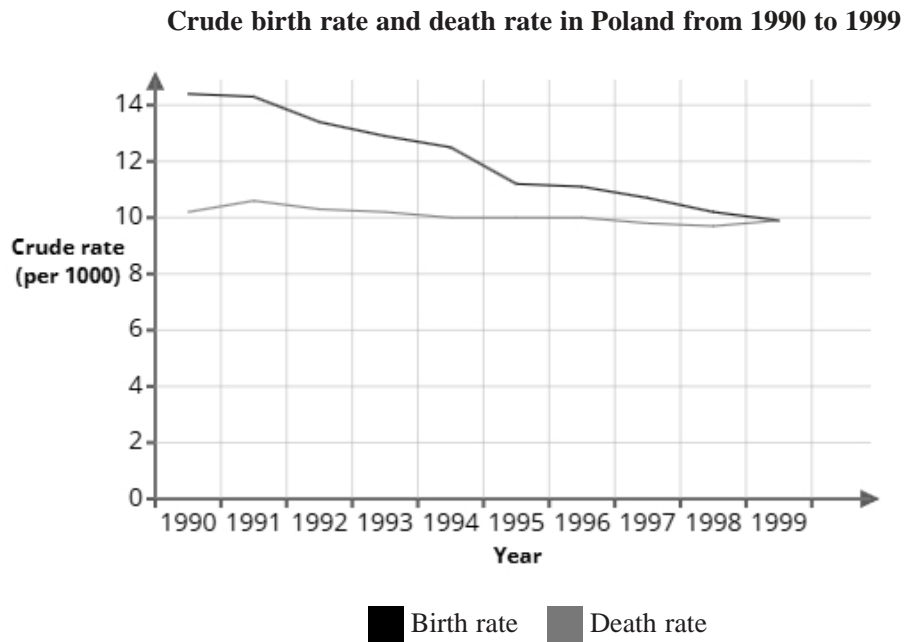
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8 The graph shows the crude birth rate and death rate in Poland from 1990 to 1999



Elena uses the information in the graph to conclude:

"The total population in Poland has increased from 1990 to 1999"

(a) Explain how the information in this graph supports Elena's conclusion.

(1 mark)

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(b) Give a reason why Elena's conclusion might **not** be correct.

(1 mark)

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(c) In 2000, the population of Poland was 38 651 245.

There were 378 343 recorded births.

Using the formula below, calculate the crude birth rate in 2000.

Give your answer correct to 1 decimal place.

$$\text{crude birth rate} = \frac{\text{number of births} \times 1000}{\text{total population}}$$

(2 marks)

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9 Sophia investigates the heights of 210 students in a school.

The heights range from 129 cm to 203 cm.

Sophia considers using one of the two possible grouped frequency tables for the results, Table A or Table B, shown below.

**Table A**

Height (h cm)	Frequency
$90 < h \leq 120$	0
$120 < h \leq 150$	37
$150 < h \leq 180$	147
$180 < h \leq 210$	26
$210 < h \leq 240$	0

**Table B**

Height (h cm)	Frequency
$120 < h \leq 140$	13
$140 < h \leq 160$	62
$160 < h \leq 180$	109
$180 < h \leq 200$	24
$200 < h \leq 220$	2

(a) Give **two** advantages of using grouped data rather than raw data.

(2 marks)

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(b) Give **one** disadvantage of using grouped data rather than raw data.

(1 mark)

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(c) Sophia feels that Table B gives more detail than Table A about the results.

Assess the appropriateness of Sophia's claim.

(2 marks)

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(d) Sophia wants to work out the average height of the 200 students in the school.

She decides to use Table B.

Calculate the average height of the 200 students in the school, giving your answer to 1 decimal place.

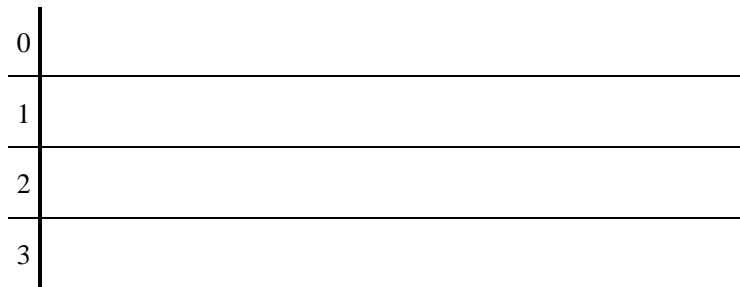
(3 marks)

\_\_\_\_\_ cm

**10** 23 male volunteers were asked to hit targets with 50 darts and the number of targets hit was measured.  
Here are the results.

34	25	14	6	37	4	35	9
24	3	37	1	13	8	4	31
22	24	17	9	38	29	21	

(a) Complete the stem and leaf diagram for the data.



**Key:** 1|3 = 13

(2 marks)

(b) Work out the interquartile range from the data.

(2 marks)

(c) A group of 23 female volunteers were also measured.

The results from the female volunteers had a median of 23 and an interquartile range of 25.

Jimmy thinks that these results show that females are better at throwing darts than males.

State whether you agree with Jimmy and give reasons why.

(3 marks)

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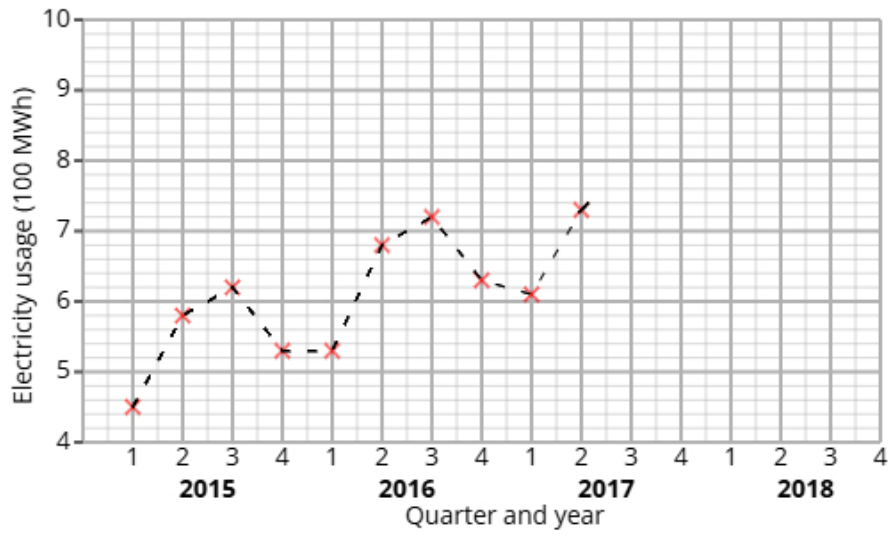
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11 The time series graph shows information about the electricity usage at a school from 2015 to 2017.



Noah calculates the 4-point moving averages from the time series graph, which are shown below.

5.5      5.7      5.9      6.2      6.4      6.6      6.7

(a) Identify and interpret in context one example of seasonality displayed in the time series graph.

(2 marks)

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(b) Explain why a 4-point moving average is appropriate.

(1 mark)

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- 12** A fair 2-sided spinner is numbered 1, 2.  
 A fair 5-sided spinner is numbered 1, 2, 3, 4, 5.

The spinners are used to play a game. Both spinners are spun and the total score is recorded.

		5-sided spinner				
		1	2	3	4	5
2-sided spinner	1	2	3			
	2	3				

The game is won when the total is at least 5.

Aiden plays the game once.

- (a) Complete the sample space diagram.

(2 marks)

- (b) Find the probability that Aiden wins the game.

(2 marks)

**13** Anna organises two different cooking workshops, Workshop X and Workshop Y, to help people learn to bake cakes.

She wants to compare the two different workshops to see which is more effective.

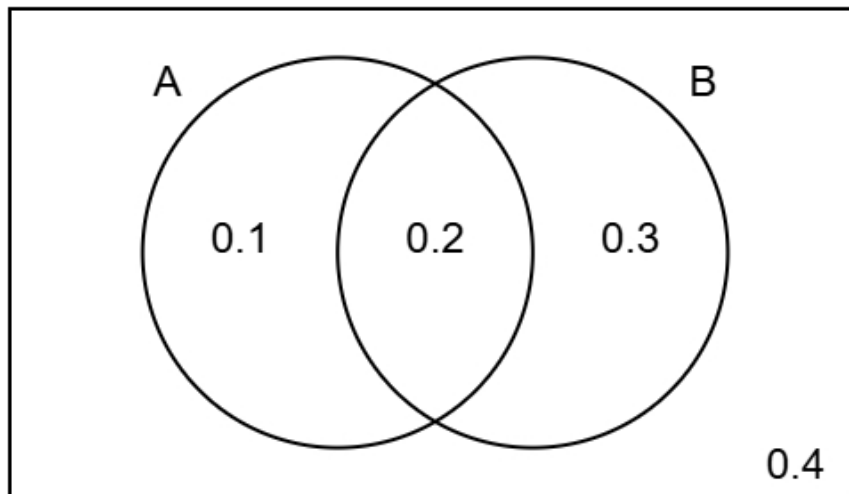
The table shows number of participants who passed and failed the baking test for each of the two workshops.

	Passed	Failed	Total
Workshop X	40	8	48
Workshop Y	5	25	30

- (i) Find the relative risk of failing the baking test having been in Workshop X compared to Workshop Y.  
(ii) Give an interpretation of your answer to part (i).

(4 marks)

- 14 The Venn diagram shows information about the probabilities of two events occurring.  
The events are labelled as A and B.



- (a) Find the probability of event B happening.

(1 mark)

- (b) Find  $P(A \text{ and } B)$

(1 mark)

- (c) Find  $P(B | A)$

(2 marks)

(d) Two different events events P and Q are independent.

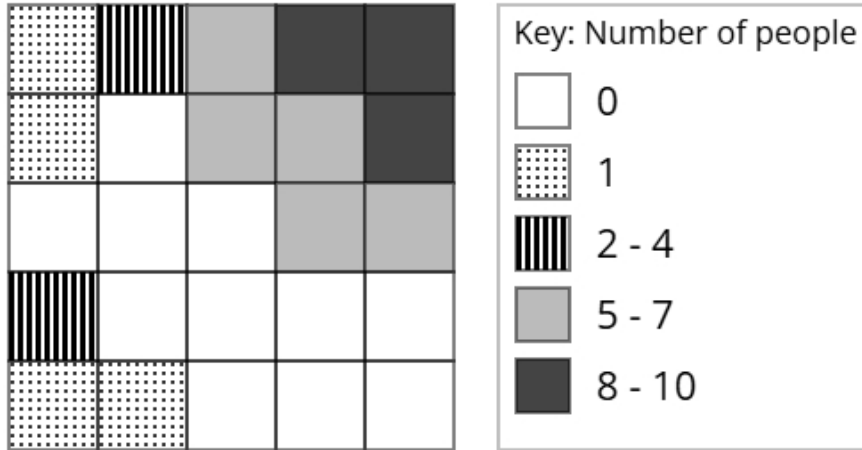
$$P(P) = 0.6$$

$$P(Q) = 0.7$$

Find  $P(P \text{ and } Q)$

(2 marks)

- 15** The choropleth map below represents a train station concourse that has been divided into 25 squares of equal area. Mei has collected data about the popularity of different parts of the train station concourse. The number of people recorded in each square on one Sunday morning is shown.



- (a) Calculate an estimate of the total number of people that were recorded on Sunday.

(3 marks)

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- (b) Mei would like to open a coffee kiosk in the train station concourse.

After analysing the data, she decides that she should open the coffee kiosk in the corner of the train station concourse shown at the top right of the choropleth map.

Using the information in the choropleth map, assess the validity of Mei's conclusion.

(2 marks)

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(c) Carol argues that the method used by Mei to collect the data is not appropriate for reaching a reliable conclusion.

Assess whether Carol's argument is correct and give a reason.

(1 mark)

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