

# Statistics GCSE

## Paper 1

Edexcel Foundation - 2026

Foundation Tier

Variant 2

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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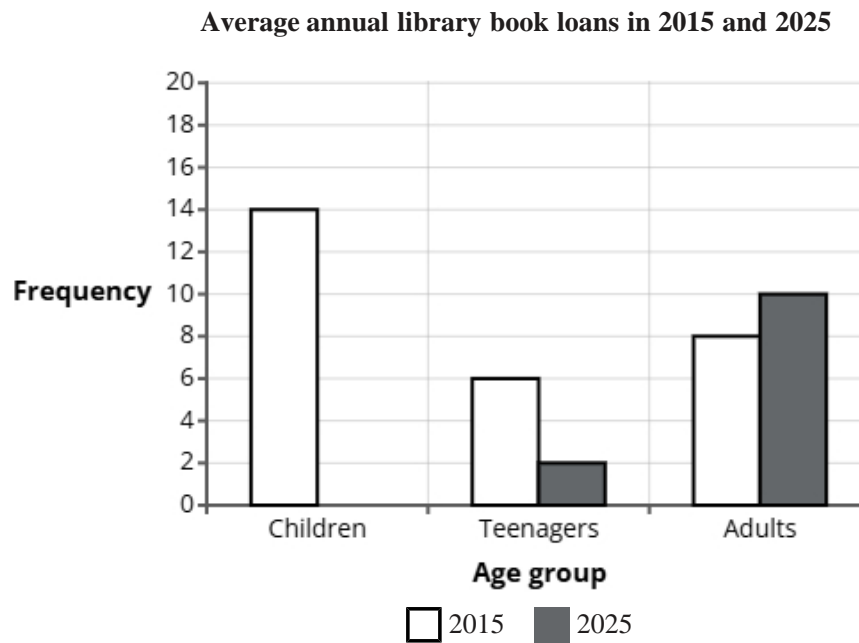
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### Advice

- 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 average number of books borrowed from a library by children, teenagers and adults in 2015 and 2025.



In 2025, children borrowed an average of 16 books.

- (a) Complete the comparative bar chart for children.

(1 mark)

- (b) Find how many more library books were borrowed by adults than teenagers in 2015.

(2 marks)

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- (c) Compare the number of library books borrowed by children, teenagers and adults in 2015.

(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)

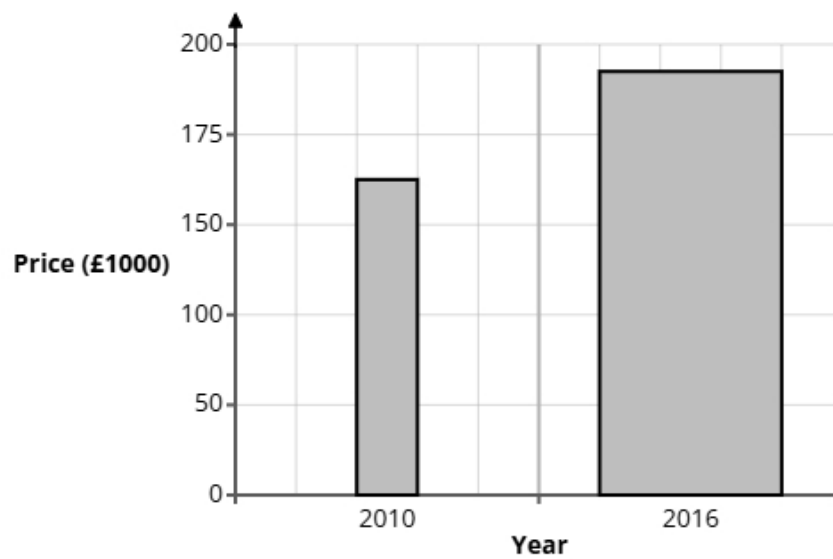
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2 A newspaper journalist compared house prices in 2010 and 2016 to support an article on the cost of living. A bar chart is drawn from the information.



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

(2 marks)

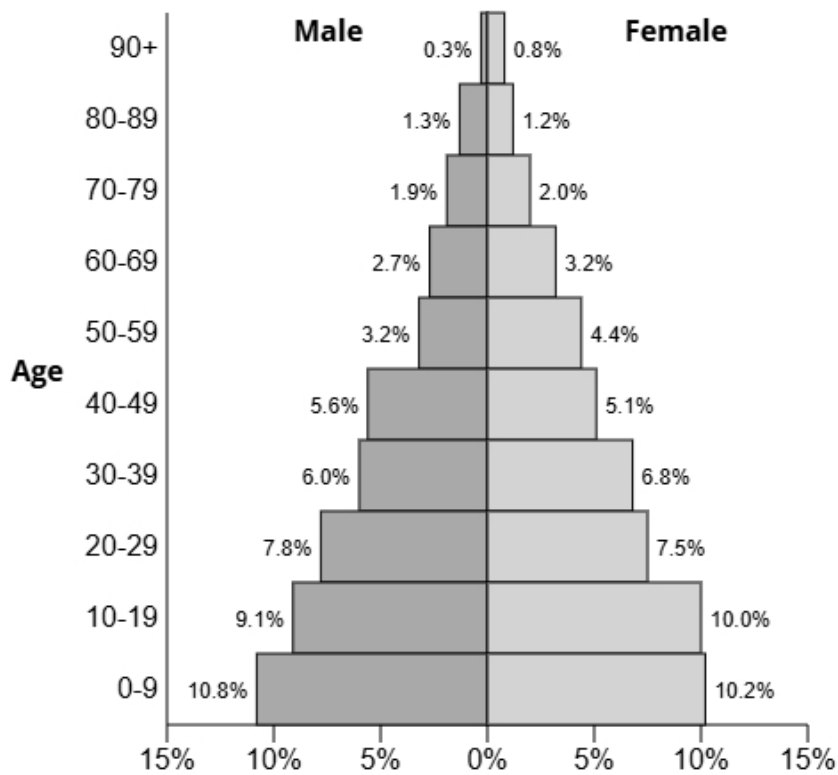
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3 The population pyramid below shows the percentage of males and females in each age group for the town Elderleigh.



(a) Write down the percentage of females in the age group 30-39.

(1 mark)

\_\_\_\_\_ %

(b) Find the age group for males that has 3.2% of the population.

(1 mark)

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(c) Find the age group that has 19.1% of the population.

(1 mark)

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(d) Compare the percentage of the population aged 20-49 between males and females.

(1 mark)

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(e) Give a reason why the sum of all the percentages is 99.9% and not 100%.

(1 mark)

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**4** A city council is considering adding more public transport routes.

Ethan wants to conduct a survey to learn what all the residents in the city think about the plan.

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

**(a)** Ethan has decided to use the electoral register as a sampling frame.

State one problem Ethan may have using the electoral register as a sampling frame.

(1 mark)

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**5** The owner of a café is reviewing the variety of cakes they offer.

The owner wants feedback from customers.

He plans to give a questionnaire to customers who visit the café on Saturday afternoon and ask them to bring it back next time they come to the café.

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

(1 mark)

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**(b)** Assess the café owner's plan to get the opinions of the customers.

(3 marks)

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**(c)** Here is an open question that the café owner is considering for the questionnaire.

What do you think about the variety of cakes we offer?

Give one reason why this is not a good question.

(1 mark)

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(d) Design a suitable closed question for the café owner to use on his questionnaire so that he can decide how many cakes to offer customers.

(2 marks)

(e) When the café owner has designed his questionnaire, he decides to pre-test it by using a pilot survey with a small sample of customers.

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

(2 marks)

Select **two** boxes.

- A pilot survey will include more people.
- A pilot survey will be cheaper than a survey.
- A pilot survey will test questions are understood.
- A pilot survey will give an idea of response rate.
- A pilot survey will give more accurate data.

6 A teacher is interested in how long students spend revising at home each week.

He plans to ask a sample of 30 students in Year 10 to record the number of hours they spend revising in one week.

Each student will write their total revision time on a sheet of paper.

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

(2 marks)

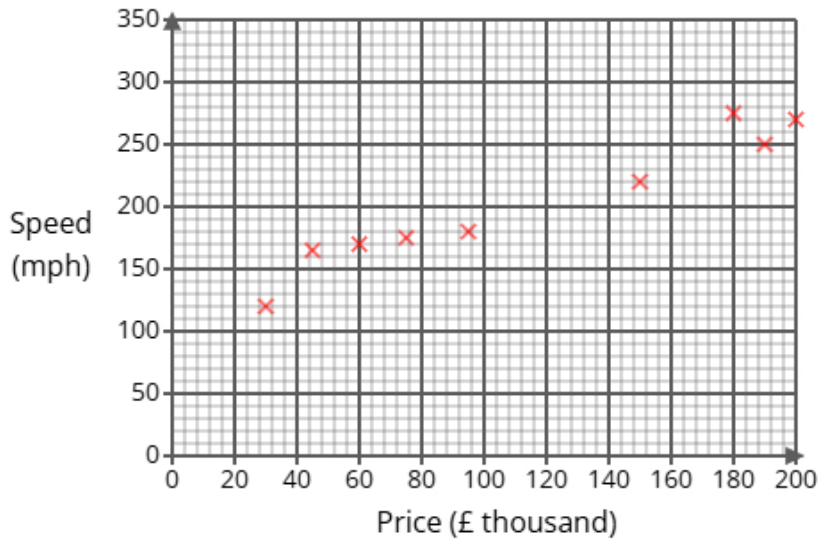
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7 Emma recorded data on 11 cars, recording their top speed (in miles per hour) and their price (in thousands of pounds). She represented her findings in the scatter diagram below.



(a) One of the 11 cars has a top speed of 225[s038].  
For this car, write down its price.

(1 mark)

£ \_\_\_\_\_

(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 car will be releasing soon with a price of £250,000.

Emma is planning on using the line of best fit on the scatter diagram to predict the top speed of the new car.

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

(2 marks)

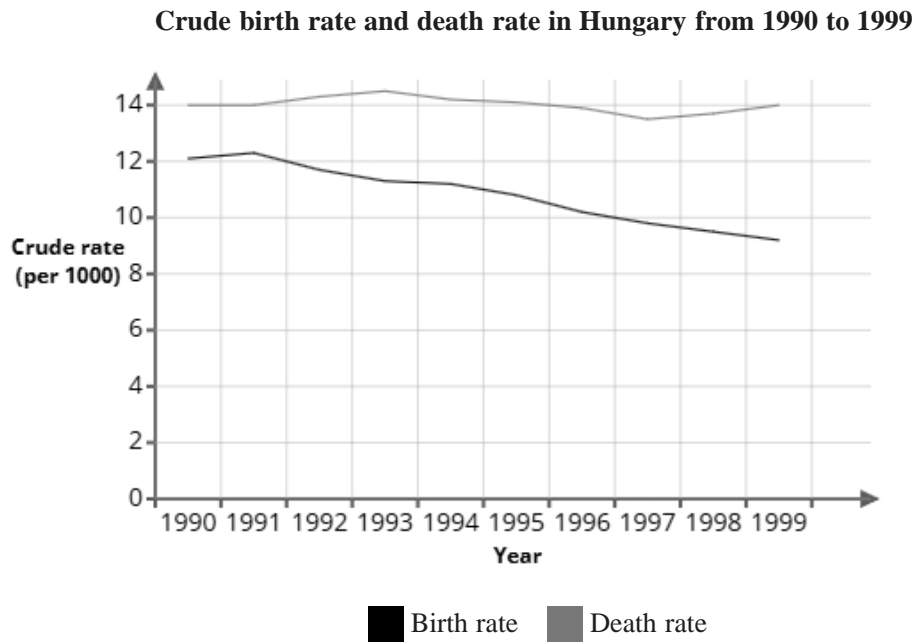
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8 The graph shows the crude birth rate and death rate in Hungary from 1990 to 1999



Victor uses the information in the graph to conclude:

"The total population in Hungary has decreased from 1990 to 1999"

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

(1 mark)

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

(1 mark)

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(c) In 2000, the population of Hungary was 10 222 254.

There were 135 664 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 Liam investigates the weights of 180 dogs at a pet shelter.

The weights range from 32 kg to 78 kg.

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

**Table A**

Weight ( $w$ kg)	Frequency
$0 < w \leq 30$	0
$30 < w \leq 60$	87
$60 < w \leq 90$	93
$90 < w \leq 120$	0
$120 < w \leq 150$	0

**Table B**

Weight ( $w$ kg)	Frequency
$30 < w \leq 40$	5
$40 < w \leq 50$	28
$50 < w \leq 60$	54
$60 < w \leq 70$	59
$70 < w \leq 80$	34

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

Assess the appropriateness of Liam's claim.

(2 marks)

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(d) Liam wants to work out the average weight of the 180 dogs at the pet shelter.

He decides to use Table B.

Calculate the average weight of the 180 dogs at the pet shelter, giving your answer to 1 decimal place.

(3 marks)

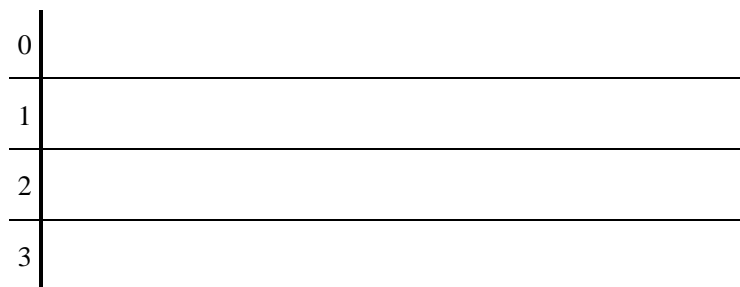
\_\_\_\_\_ kg

**10** 23 female participants were asked to stack cups before the tower falls and the number of cups stacked was measured.

Here are the results.

34	17	1	35	10	39	15	36
7	36	11	34	10	17	8	35
34	31	17	9	8	26	32	

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



**Key:** 1|0 = 10

(2 marks)

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

(2 marks)

(c) A group of 23 male participants were also measured.

The results from the male participants had a median of 15 and an interquartile range of 21.

Emily thinks that these results show that females are better at stacking cups than males.

State whether you agree with Emily and give reasons why.

(3 marks)

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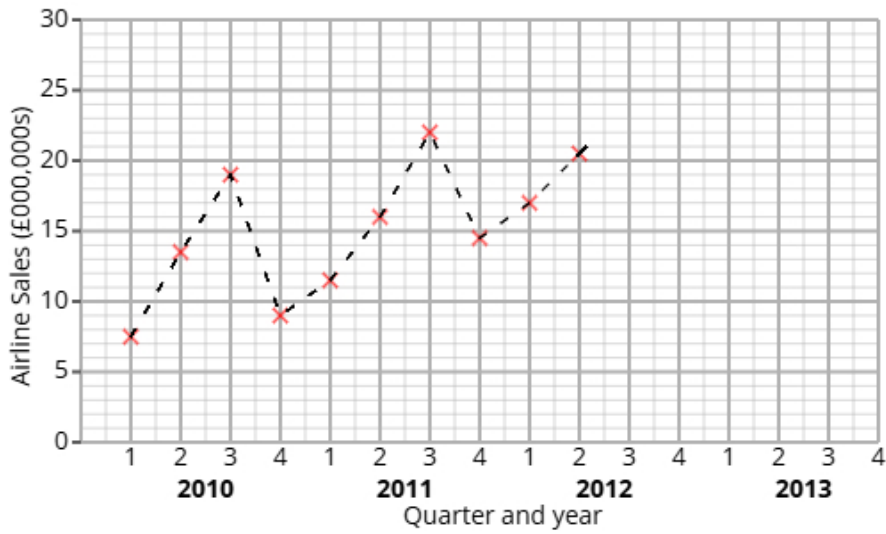
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11 The time series graph shows information about the the sales for an airline from 2010 to 2012.



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

12.5      13.5      14      14.5      16      17.5      18.5

(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 3-sided spinner is numbered 1, 2, 3.

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
3-sided spinner	1	2	3			
	2	3				
	3					

The game is won when the total is at least 6.

Maya plays the game once.

(a) Complete the sample space diagram.

(2 marks)

(b) Find the probability that Maya wins the game.

(2 marks)

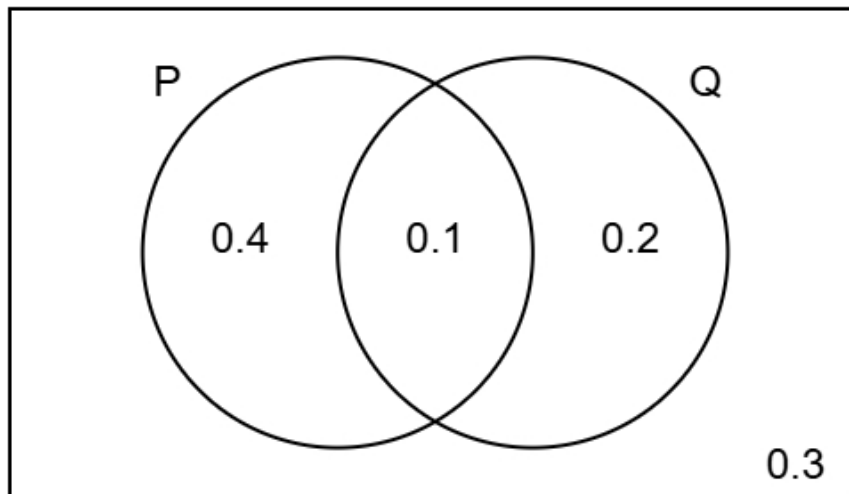
- 13** Liam organises two fitness programs, Program A and Program B, to help people improve their stamina. He wants to compare the two programs to see which improves stamina better. The table shows number of participants who passed and failed the fitness test for each program.

	Passed	Failed	Total
Program A	10	15	25
Program B	12	36	48

- (i) Find the relative risk of failing the fitness test having taken Program A compared to Program B.  
(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 P and Q.



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

(1 mark)

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

(1 mark)

- (c) Find  $P(Q | P)$

(2 marks)

(d) Two different events events  $X$  and  $Y$  are independent.

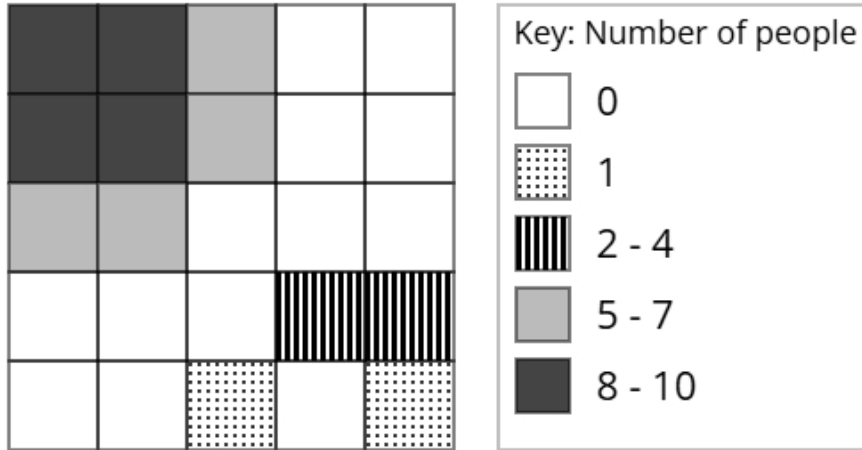
$$P(X) = 0.5$$

$$P(Y) = 0.9$$

Find  $P(X \text{ and } Y)$

(2 marks)

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



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

(3 marks)

\_\_\_\_\_

- (b) Dave would like to open a smoothie cart in the shopping centre.

After analysing the data, he decides that he should open the smoothie cart in the corner of the shopping centre shown at the top left of the choropleth map.

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

(2 marks)

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

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

(1 mark)

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