

# Statistics GCSE

## Paper 1

Edexcel Foundation - 2026

Foundation Tier

Variant 3

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.
- This site is not endorsed by any company or charity, unless we state otherwise.

### Copyright

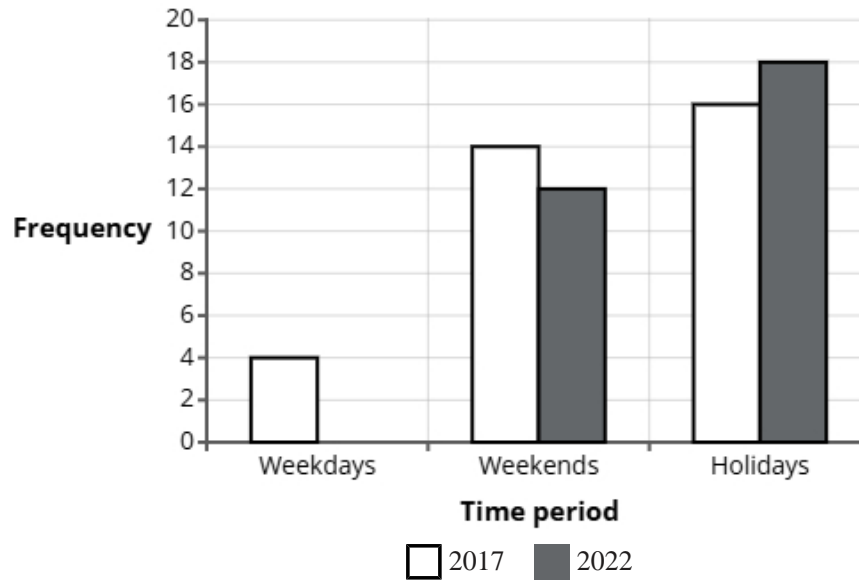
- Sharing this PDF is strictly forbidden unless you have the author's permission.
- This paper is only authorised to be used by the person who has bought it.
- You may not store this online or any shared area such as an intranet.
- Please contact us if you have any queries.

### 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 shopping centres visited at weekdays, weekends and holidays in 2017 and 2022.

**Average number of shopping centres visited in 2017 and 2022**



In 2022, people visited an average of 2 shopping centres on a weekday.

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

(1 mark)

- (b) Find how many more times people visited shopping centres in the holidays than at weekends in 2017.

(2 marks)

\_\_\_\_\_

- (c) Compare the number of shopping centres visited at weekdays, weekends and holidays in 2017.

(2 marks)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

Explain what is meant by quantitative data.

(1 mark)

---

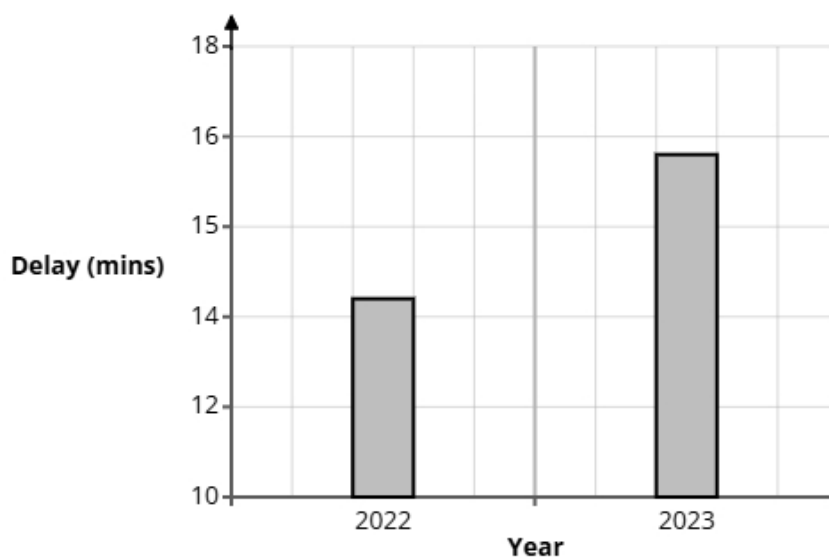
---

---

---

2 A media outlet reviewed figures on public transport delays across a train line in 2022 and 2023.

A bar chart is drawn from the information.



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

(2 marks)

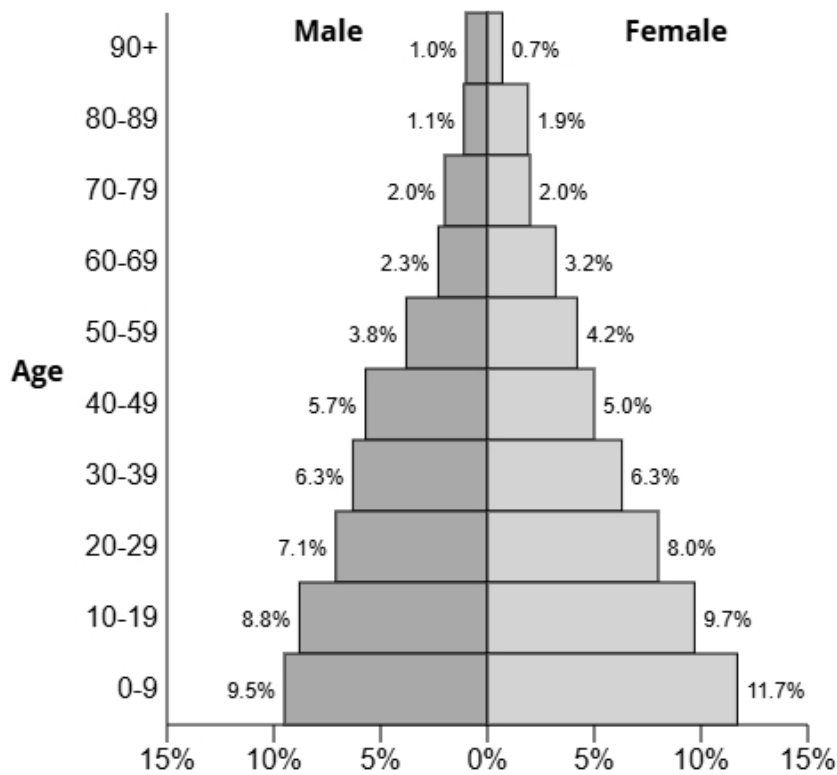
---

---

---

---

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



(a) Write down the percentage of females in the age group 10-19.

(1 mark)

\_\_\_\_\_ %

(b) Find the age group for males that has 7.1% of the population.

(1 mark)

\_\_\_\_\_

(c) Find the age group that has 12.6% of the population.

(1 mark)

---

(d) Compare the percentage of the population aged 50-79 between males and females.

(1 mark)

---

---

---

---

(e) Give a reason why the sum of all the percentages is 100.3% and not 100%.

(1 mark)

---

---

---

---

**4** A sports club is thinking about upgrading its facilities.

Jack is carrying out a survey to see what all club members think about the improvements.

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

**(a)** Jack has decided to use the register of members as a sampling frame.

State one problem Jack may have using the register of members as a sampling frame.

(1 mark)

---

---

---

---



**5** The manager of a gym is reviewing the range of fitness classes offered.

The manager wants to find out what members think.

She plans to give a questionnaire to members who attend morning classes next week and ask them to return it at reception the following week.

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

(1 mark)

---

---

---

---

**(b)** Assess the gym manager's plan to get the opinions of the members.

(3 marks)

---

---

---

---

---

---

**(c)** Here is an open question that the gym manager is considering for the questionnaire.

What do you think about the fitness classes we offer?

Give one reason why this is not a good question.

(1 mark)

---

---

---

---

(d) Design a suitable closed question for the gym manager to use on her questionnaire so that she can decide how many different classes to run at the gym each week.

(2 marks)

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

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

(2 marks)

Select **two** boxes.

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

6 A sports coach wants to know how much time players spend training outside organised sessions each week. She plans to ask 10 players from the team to record the number of hours they train in a week.

Each player will write down their weekly training time.

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

(2 marks)

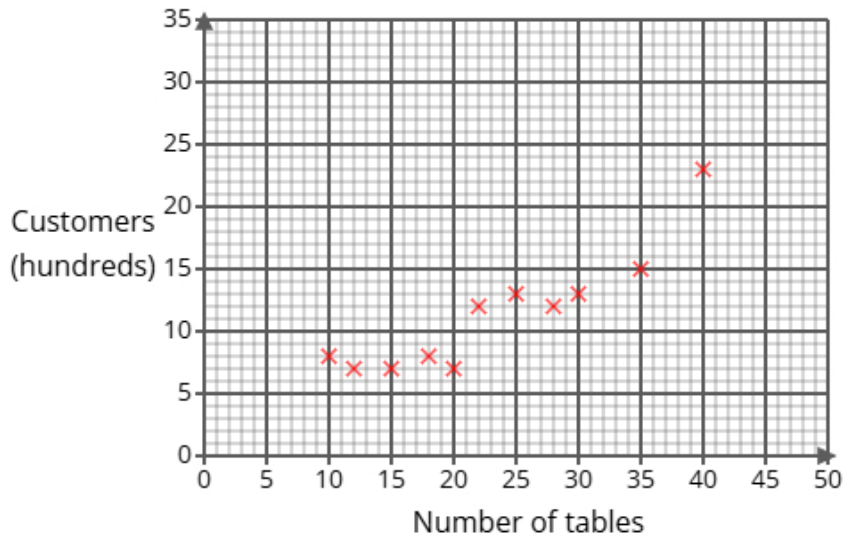
---

---

---

---

7 Noah collected data on 11 restaurants, recording their number of tables and the average number of customers they serve per week (in hundreds). He represented his findings in the scatter diagram below.



(a) One of the 11 restaurants has 28 tables.

For this restaurant, write down the average number of customers they serve per week.

(1 mark)

\_\_\_\_\_ customers

(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)

---



---



---



---



---



---

(d) A new restaurant will be opening soon with 75 tables.

Noah is planning on using the line of best fit on the scatter diagram to predict the average number of customers they serve per week.

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

(2 marks)

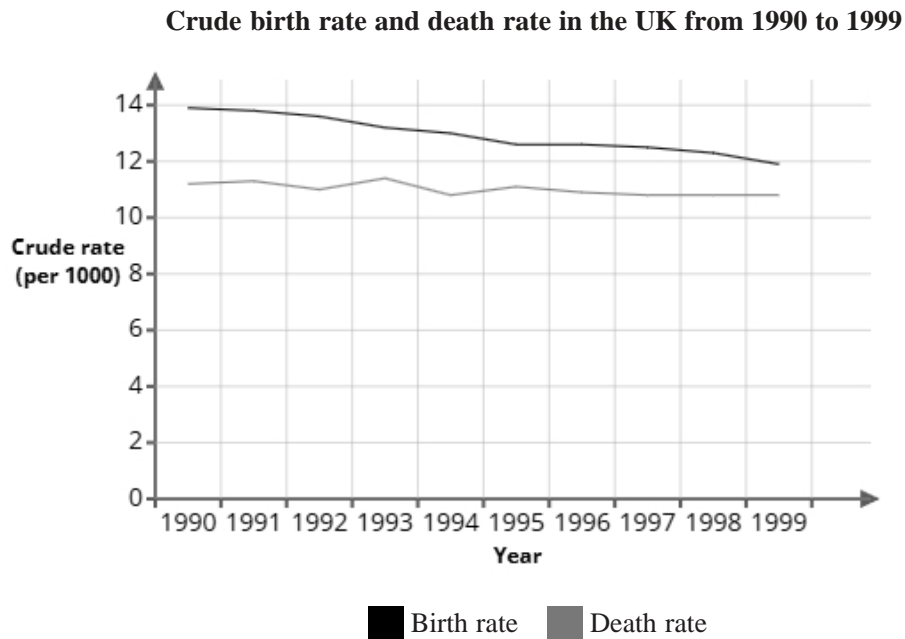
---

---

---

---

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



Sophia uses the information in the graph to conclude:

"The total population in the UK has increased from 1990 to 1999"

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

(1 mark)

---

---

---

---

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

(1 mark)

---

---

---

---

(c) In 2000, the population of the UK was 58 894 355.

There were 679 324 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)

---

9 Emma investigates the monthly electricity bills (in pounds) of 250 households.

The charges range from £38 to £112.

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

**Table A**

Charge (£ p)	Frequency
$0 < p \leq 30$	0
$30 < p \leq 60$	45
$60 < p \leq 90$	169
$90 < p \leq 120$	36
$120 < p \leq 150$	0

**Table B**

Charge (£ p)	Frequency
$30 < p \leq 50$	18
$50 < p \leq 70$	79
$70 < p \leq 90$	116
$90 < p \leq 110$	33
$110 < p \leq 130$	4

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

(2 marks)

---

---

---

---

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

(1 mark)

---

---

---

---

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

Assess the appropriateness of Emma's claim.

(2 marks)

---

---

---

---

(d) Emma wants to work out the average monthly electricity bills of the 250 households.

She decides to use Table B.

Calculate the average monthly electricity bills of the 250 households, giving your answer to 1 decimal place.

(3 marks)

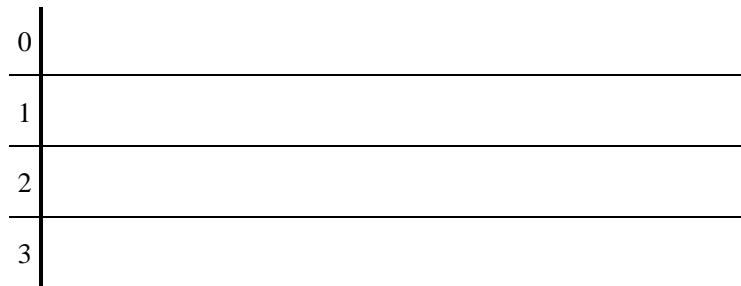
\_\_\_\_\_ pounds

**10** 23 male volunteers were asked to toss a ball into a basket 40 times and the number of successful hits was measured.

Here are the results.

16	6	5	16	22	33	9	35
17	37	22	37	7	20	7	5
3	19	13	10	2	5	5	

(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 female volunteers were also measured.

The results from the female volunteers had a median of 16 and an interquartile range of 15.

Oliver thinks that these results show that females are better at tossing a ball into a basket than males.

State whether you agree with Oliver and give reasons why.

(3 marks)

---

---

---

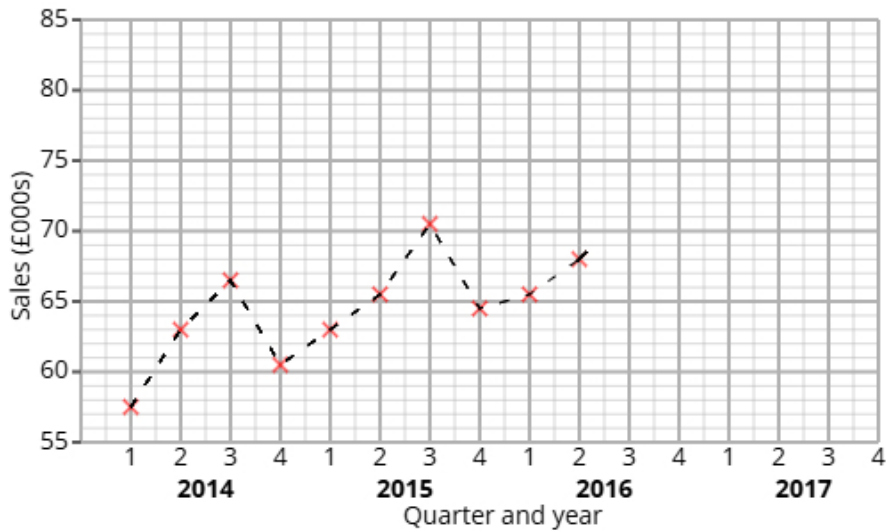
---

---

---

---

11 The time series graph shows information about the sales at a clothes shop from 2014 to 2016.



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

62      63      64      65      66      67      67

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

(2 marks)

---



---



---



---

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

(1 mark)

---



---



---



---

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

A fair 3-sided spinner is numbered 1, 2, 3.

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

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

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

Kai plays the game once.

(a) Complete the sample space diagram.

(2 marks)

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

(2 marks)

- 13** Sara organises two painting classes, Class Red and Class Blue, to help people learn watercolour techniques. She wants to compare the two classes to see which improves skills more.

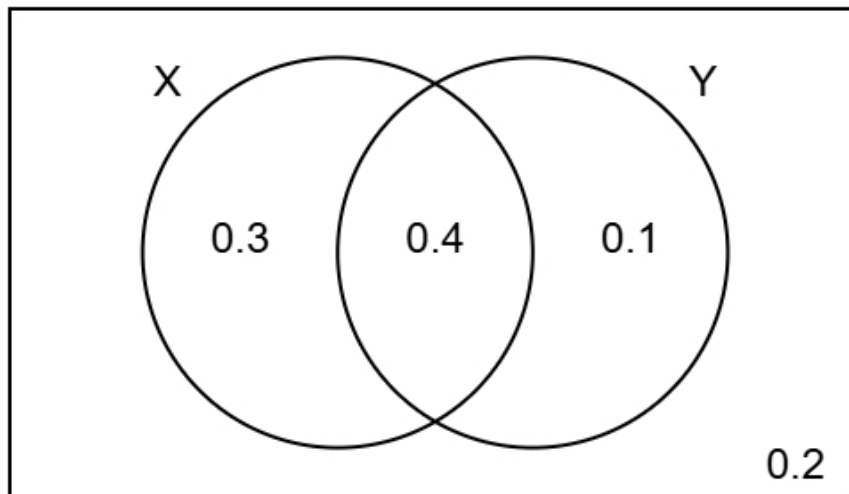
The table shows number of participants who passed or failed the painting challenge.

	Passed	Failed	Total
Class Red	24	8	32
Class Blue	35	25	60

- (i) Find the relative risk of failing the painting challenge having been in Class Red compared to Class Blue.  
(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 X and Y.



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

(1 mark)

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

(1 mark)

- (c) Find  $P(Y | X)$

(2 marks)

(d) Two different events events R and S are independent.

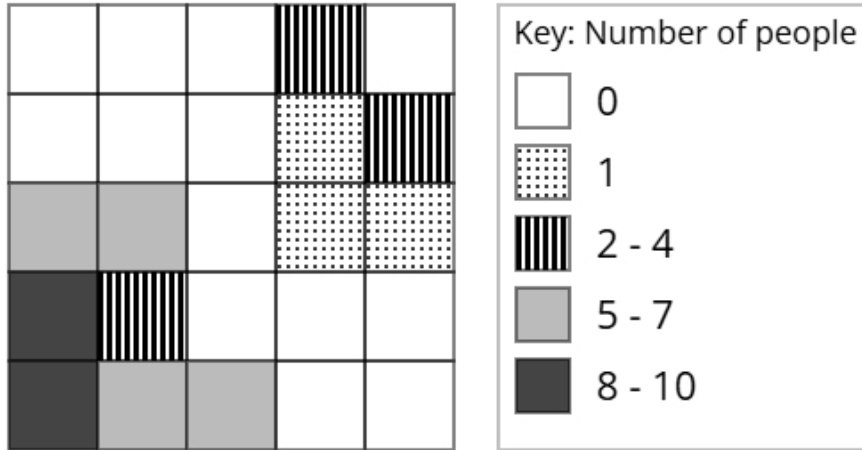
$$P(R) = 0.4$$

$$P(S) = 0.8$$

Find  $P(R \text{ and } S)$

(2 marks)

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



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

(3 marks)

\_\_\_\_\_

- (b) Aisha would like to open a flower stall in the town square.

After analysing the data, she decides that she should open the flower stall in the corner of the town square shown at the bottom left of the choropleth map.

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

(2 marks)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

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

(1 mark)

---

---

---

---