statsGCSE

Statistics GCSE

Paper 1

Edexcel Foundation - 2025

Notier 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.
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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 A greengrocer keeps track of how many apples they sell every day of the week. This helps them ensure that they always have fresh stock.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:

 represents 8 apples

(a) Find the amount of apples sold on Monday.

(1 mark)

(b) Find the amount of apples sold on Wednesday.

(1 mark)

(c) On Thursday, the number of apples sold was 24.
Show this information on the pictogram.

(1 mark)

(d) Eduardo suggests redrawing the pictogram using a key with a whole-circle representing 5 apples.

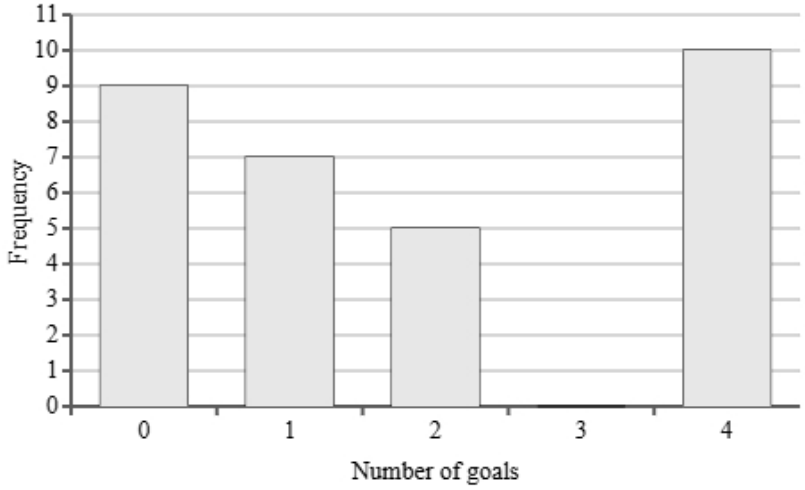
Explain why this key would **not** be suitable.

(1 mark)

2 Emma has recorded the number of goals scored by 35 football players in a season.

Each player scored between 0 and 4 goals.

The incomplete bar chart provides data on the number of players who scored 0, 1, 2, and 4 goals.



(a) 4 people scored 3 goals.

Complete the bar chart.

(1 mark)

(b) Find how many more people scored no goals than scored 2 goals.

(1 mark)

(c) Emma has trained all the football players shown in the bar chart.

She thinks that because most people scored 4 goals then her training methods have worked well.

Explain why Emma may not be right.

(1 mark)

3 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) Give two reasons why Jack might think this.

(2 marks)

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

Explain what a sampling frame is.

(1 mark)

(c) 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)

(d) Give **two** reasons why Jack should conduct a pilot survey.

(2 marks)

(e) Jack is writing a plan for the investigation into club members' opinions on the upgrades to the facilities at the sports club.

Write down what Jack should include in the plan and explain why each of the things is appropriate.

You should include:

+ a sampling method

+ a question Jack should ask in the questionnaire

+ a statistical diagram to show the results of the survey.

(6 marks)

4 Nixon is studying bowhead whales and needs to know the average length of a bowhead whale.

Nixon uses the internet to find that the average length of a bowhead whale is 15 metres.

(a) Explain why the statistic collected by Nixon is an example of secondary data.

(1 mark)

(b) State one advantage and one disadvantage of using secondary data.

(2 marks)

Advantage

Disadvantage

5 James is a transport analyst working for a London borough council. He is studying commute times of residents using public transport.

He takes a simple random sample of 8 residents and asks them how long their commute took the previous day.

The commute time (hours) of the 8 people are listed:

42 39 39 120

38 43 39 40

James believes that one of the values is an outlier.

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

(1 mark)

(b) Work out the mean.

(2 marks)

_____ hours

(c) Work out the range.

(1 mark)

_____ hours

(d) Write down the value that is most likely to be an outlier and explain why you think this value is an outlier.

(2 marks)

(e) James removes the outlier.

State whether the mean of the remaining seven values is greater than, is equal to or is less than the mean of all eight salaries.

Give a reason for your answer.

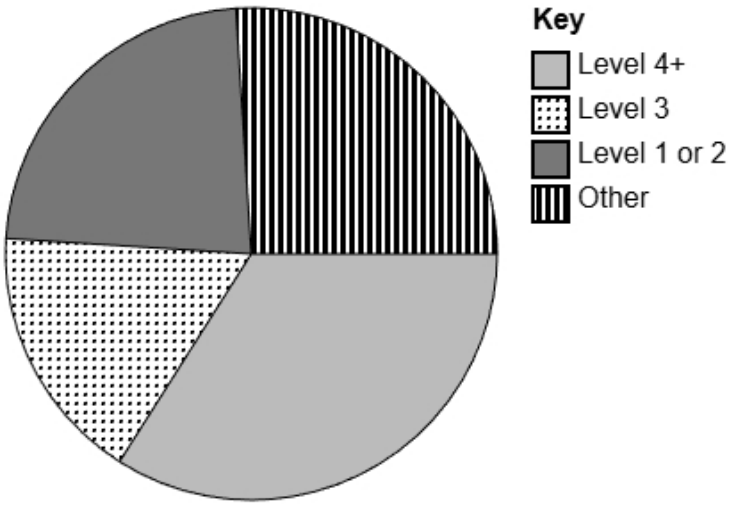
(2 marks)

(f) After calculating the mean of the seven values without the outlier, James uses this mean in a report to describe all the residents in the borough.

Describe two things that could affect the reliability of her conclusions.

(2 marks)

6 The accurately drawn pie chart shows information about the highest level of qualification in England and Wales in 2021.



(a) Explain how you can tell that most people's highest level of qualification was level 4+ in England and Wales in 2021 using the pie chart.

(1 mark)

(b) The population in the England and Wales in 2021 was estimated to be 60 million.
Calculate an estimate for the number of people in the UK in 2021 who's highest level of qualification was 'Level 4+'.
Round your answer to the nearest million.

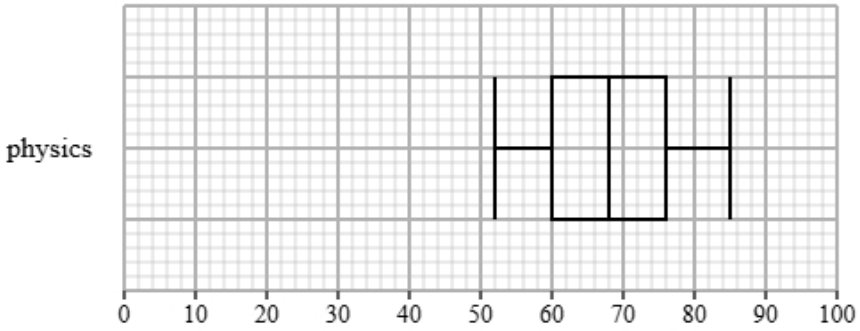
(2 marks)

_____ million

7 Olivia collected the marks for physics and business students from a statistics exam.

Both groups took the same exam.

The box plot presents data on the marks for the physics students.

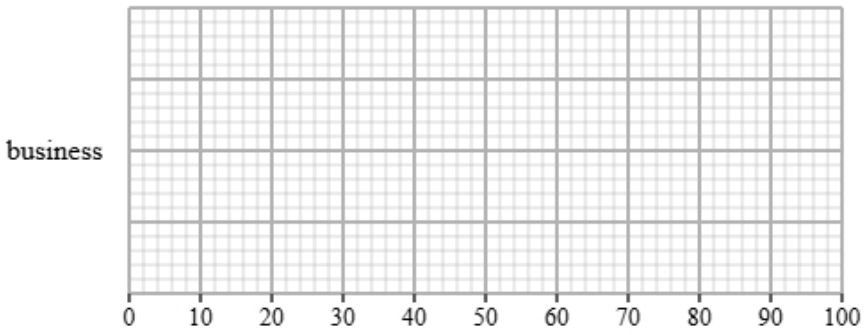


The table gives information about the marks for the business students.

Least tall	Lower quartile	Median	Upper quartile	Most tall
52	58	60	72	85

(a) Draw a box plot for the marks for the business students.

(2 marks)

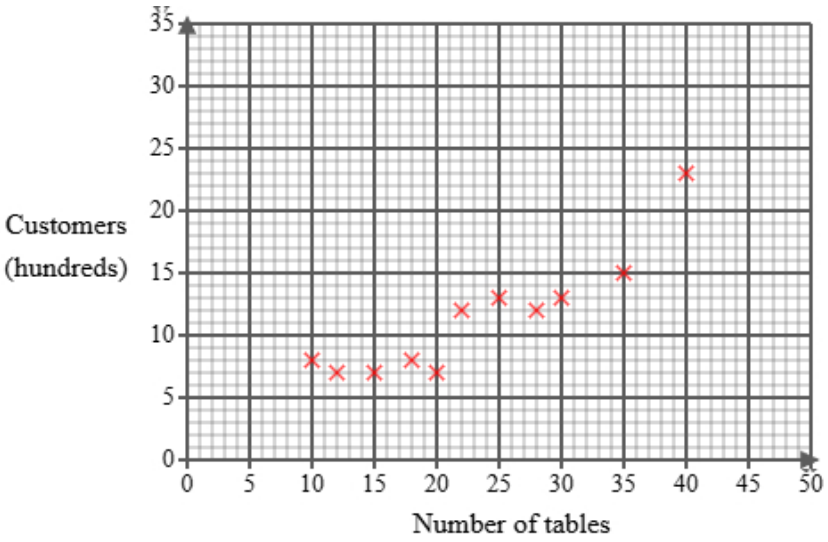


(b) Compare the two distributions of marks.

Give three comparisons and interpret one of these comparisons.

(4 marks)

8 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)

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
$0 < p \leqslant 30$	0
$30 < p \leqslant 60$	45
$60 < p \leqslant 90$	169
$90 < p \leqslant 120$	36
$120 < p \leqslant 150$	0

Table B

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

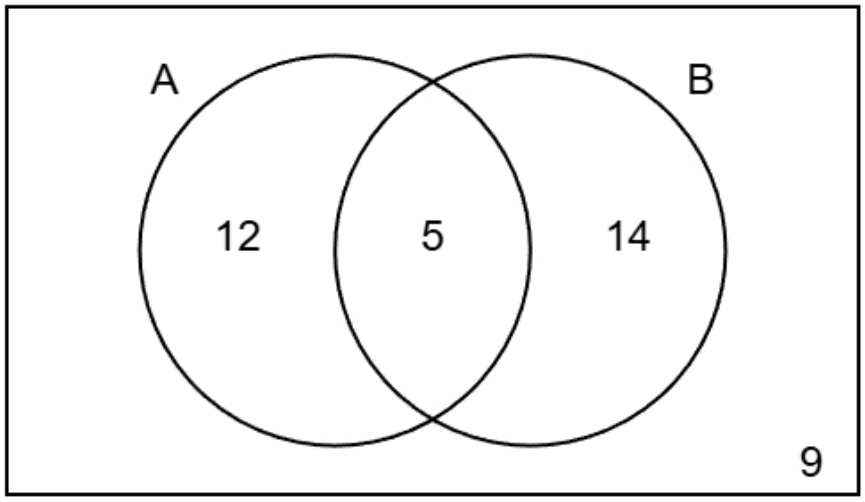
_____ pounds

10 The Venn diagram shows information about 40 cars sold in a dealership in 2022.

A is the event that the car is an electric vehicle.

B is the event that the car is priced above £30,000.

The numbers in the Venn diagram indicate the number of cars.



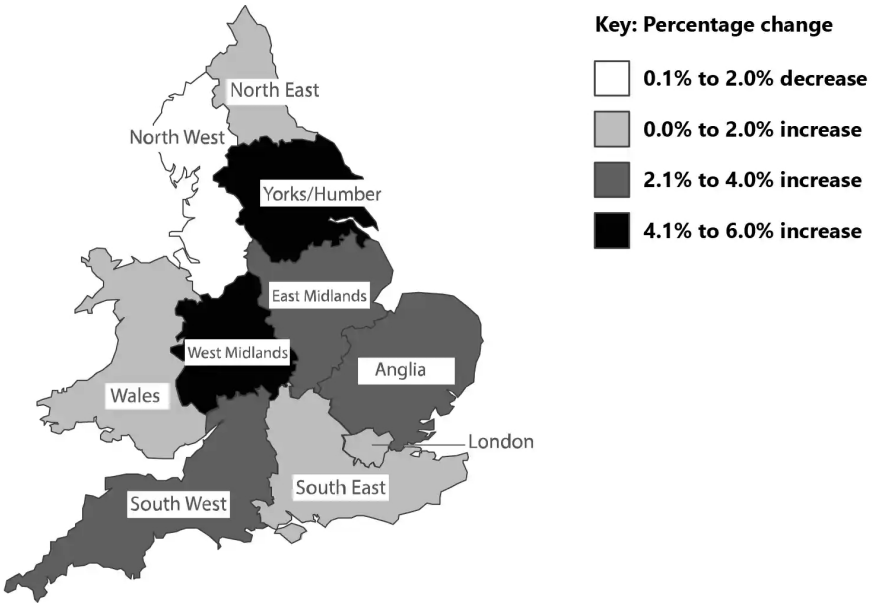
(a) In the Venn diagram, explain what the number 5 means.

(1 mark)

(b) Explain whether or not A and B are independent events by finding P(B) and P(B|A).

(5 marks)

11 The map below shows the percentage change in domestic tourist visits across different regions of England and Wales between 2012 and 2013.



(a) Write down the percentage change in domestic tourist visits between 2012 and 2013 in West Midlands.

(1 mark)

(b) There are 10 regions shown.

Find the number of regions that the domestic tourist visits **decreased**.

(1 mark)

(c) Erin states that domestic tourism in England and Wales increased overall between 2012 and 2013.

Explain why this may not be the case.

(1 mark)

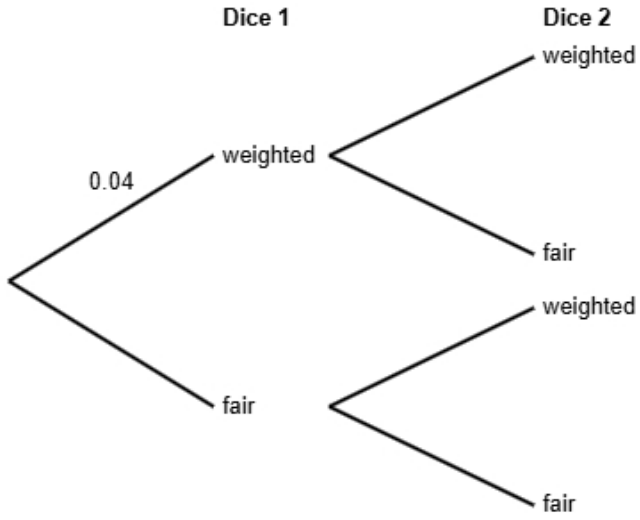
(d) State the statistical name for the type of map shown.

12 A company found that 4% of its dice are slightly weighted and do not roll fairly.

The rest of the dice are perfectly balanced.

Jack picks two dice from a random batch.

He does not know if each die is weighted or fair.



(a) Complete the probability tree diagram.

(2 marks)

(b) Find the probability that both of Jack's dice are fair.

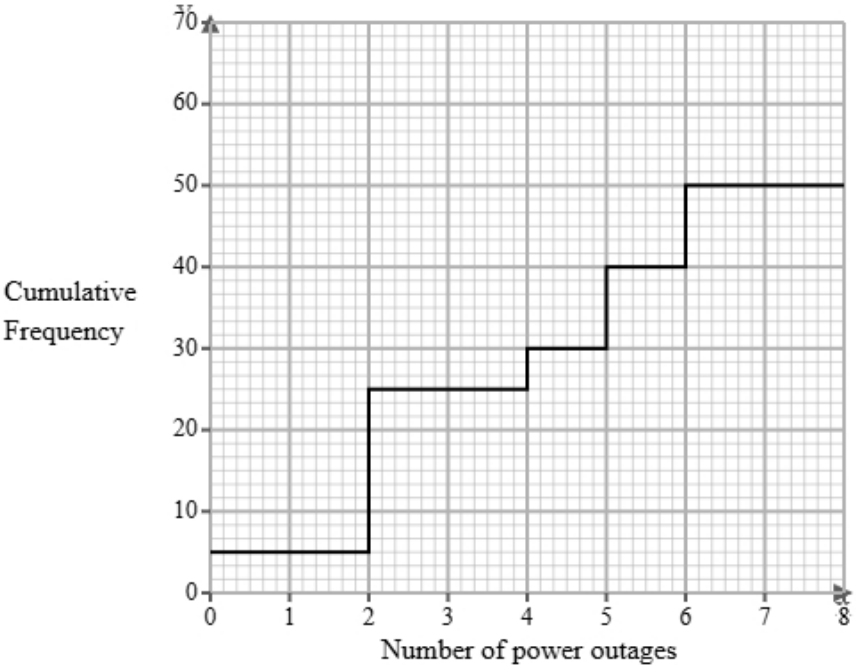
(2 marks)

(c) Jack states that the probability that exactly one dice is weighted is less than 8%

Find out whether or not Jack is correct.

(3 marks)

13 The cumulative frequency step polygon shows information about number of power outages recorded in a small town over 50 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 power outages.

(1 mark)

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

i) exactly 3 power outages.

ii) more than 3 power outages.

(3 marks)

i) Exactly 3 power outages: _____

ii) More than 3 power outages: _____

(d) In 40 days fewer than x power outages were recorded.

Find the value of x

(1 mark)

_____

(e) Nigel believes the interquartile range of number of power outages is 8.

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

(1 mark)

_____

_____

_____

_____