



Rewarding Learning

**General Certificate of Secondary Education
2025**

Statistics

Unit 1

Higher Tier

[GST12]

FRIDAY 13 JUNE, AFTERNOON

**MARK
SCHEME**

General Marking Instructions

Introduction

The mark scheme normally provides the most popular solution to each question. Other solutions given by candidates are evaluated and credit given as appropriate; these alternative methods are not usually illustrated in the published mark scheme.

The marks awarded for each question are shown in the right hand column and they are prefixed by the letters **M**, **A** and **MA** as appropriate. The key to the mark scheme is given below:

M indicates marks for correct method.

A indicates marks for accurate working, whether in calculation, readings from tables, graphs or answers.

MA indicates marks for combined method and accurate working.

The solution to a question gains marks for correct method and marks for an accurate working based on this method. Where the method is not correct no marks can be given.

A later part of a question may require a candidate to use an answer obtained from an earlier part of the same question. A candidate who gets the wrong answer to the earlier part and goes on to the later part is naturally unaware that the wrong data is being used and is actually undertaking the solution of a parallel problem from the point at which the error occurred. If such a candidate continues to apply correct method, then the candidate's individual working must be **followed through** from the error. If no further errors are made, then the candidate is penalised only for the initial error. Solutions containing two or more working or transcription errors are treated in the same way. This process is usually referred to as "follow-through marking" and allows a candidate to gain credit for that part of a solution which follows a working or transcription error.

It should be noted that where an error trivialises a question, or changes the nature of the skills being tested, then as a general rule, it would be the case that not more than half the marks for that question or part of that question would be awarded; in some cases the error may be such that no marks would be awarded.

Positive marking

It is our intention to reward candidates for any demonstration of relevant knowledge, skills or understanding. For this reason we adopt a policy of **following through** their answers, that is, having penalised a candidate for an error, we mark the succeeding parts of the question using the candidate's value or answers and award marks accordingly.

Some common examples of this occur in the following cases:

- (a) a numerical error in one entry in a table of values might lead to several answers being incorrect, but these might not be essentially separate errors;
- (b) readings taken from candidates' inaccurate graphs may not agree with the answers expected but might be consistent with the graphs drawn.

When the candidate misreads a question in such a way as to make the question easier only a proportion of the marks will be available (based on the professional judgement of the examiner)

1 (a) 0.1 minutes appears to be an outlier since it is much smaller than the other results. A2

(b)

1	6	7	8
2	0	1	3 4 7 8 9
3	0	1	4 9
4	2		

1 | 6 means 1.6 minutes MA3

(c) (i) 2.7 minutes MA1

(ii) $4.2 - 1.6 = 2.6$ minutes MA1

(d) Data logging A1

8

2 (a) She only asks cyclists so her sample is unlikely to be representative of all road users outside the school. A1

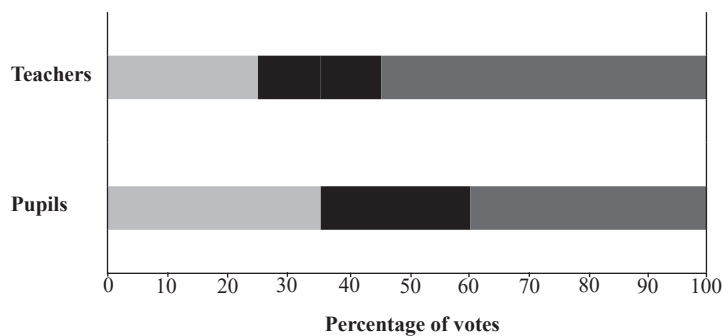
(b) (i) It is a leading question A1

(ii) Gender A1

(c) 39 A1

(d) The total number of teachers and the total number of pupils are different which makes comparisons using a bar chart difficult. A2

(e)



MA2

KEY

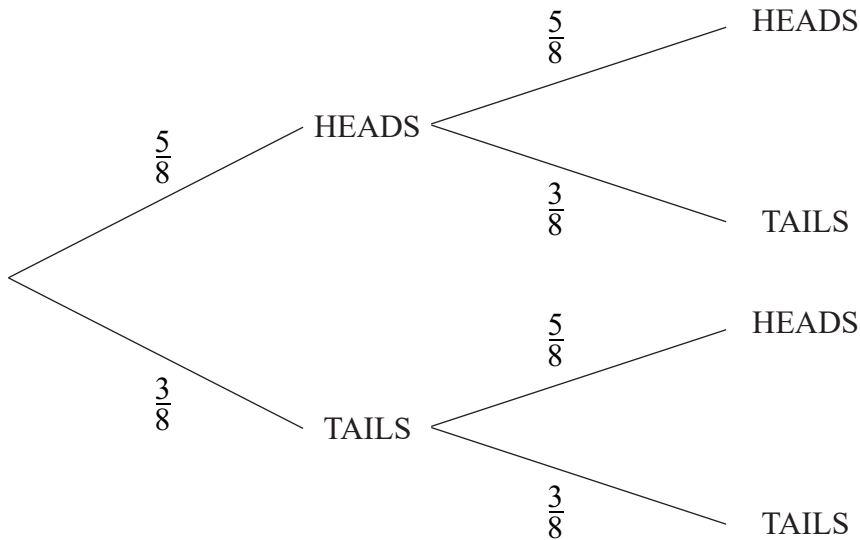


A1

9

3 (a) The probability is not $\frac{1}{2}$ A1

(b)



- (c) HEADS HEADS
 HEADS TAILS
 TAILS HEADS
 TAILS TAILS

MA2

MA2

(d) $P(HH) = \frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$

MA1 A1

(e) $P(HT \text{ or } TH) = \frac{5}{8} \times \frac{3}{8} + \frac{3}{8} \times \frac{5}{8}$
 $= \frac{15}{32}$

MA1 A1

(f) Expected number of HEADS = $200 \times \frac{5}{8}$
 $= 125$

MA1

A1

11

4 (a) The price of the shoes decreased each year between 2020 and 2023 but increased again in 2024.

A1

(b) (i) 2021 and 2022

A1

(ii) The line between 2021 and 2022 is the least steep.

A1

(c) 100

A1

(d) The price of the shoes increased by 1.7% between 2020 and 2024.

A3

(e) Index number = $\frac{54}{60} \times 100$
 $= 90$

MA1 MA1

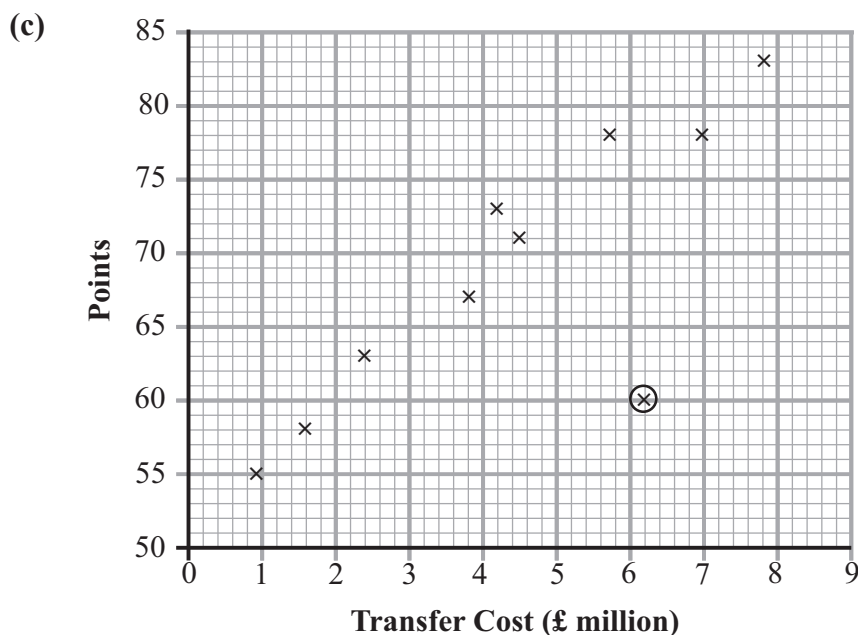
A1

10

AVAILABLE
 MARKS

- 5 (a) Primary, discrete A2
- (b) (i) 80 MA1
- (ii) 5 MA1
- (iii) Median = 40th car MA1
= 4 faults MA1
- (iv) $80 - 64 = 16$ MA1 A1
- (c) (i) $D_9 - D_1 = 6 - 2$ MA1
= 4 A1
- (ii) The range of the middle 80% of the data is 4 MA1

- 6 (a) Transfer cost A1
- (b) Positive correlation A1
The greater the total transfer cost for the team, the more points they achieve in a season. A1



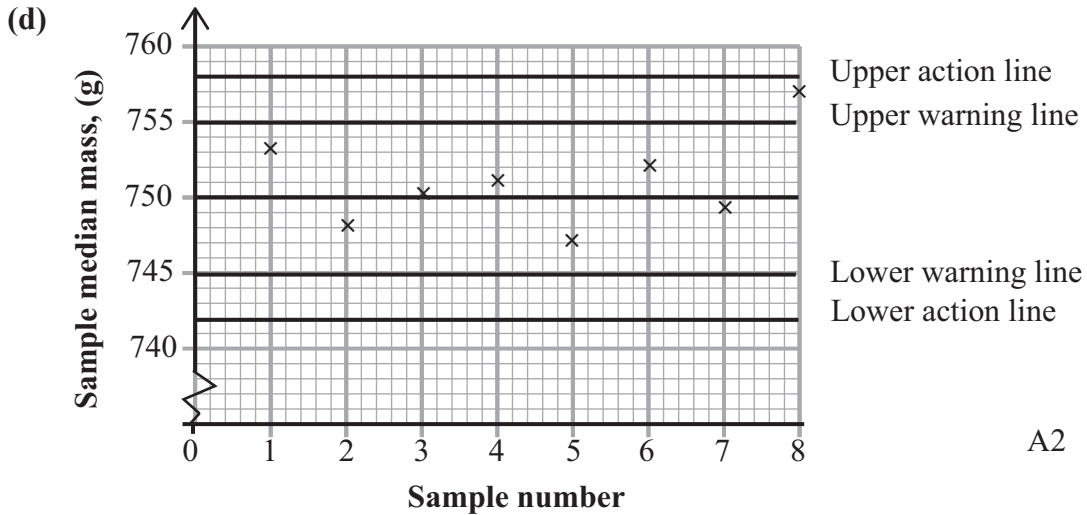
- Correct point circled A1
This team has a much lower points total compared to other teams with a similar transfer cost. A1
- (d) For every additional £1 million transfer cost, the average increase in points achieved in a season is 4.0 A2
- (e) $y = 52.7 + 4.0x$
= $52.7 + 4.0(3.1)$ M1
= 65.1
= 65 Points MA1
- (f) The model represented by the line of best fit may not be appropriate for transfer costs beyond the range of those shown in the scatter diagram. A1

AVAILABLE
MARKS

11

10

- 7 (a) This would be time consuming and similar results could be obtained by sampling. A1
- (b) Customers buying the bags of cereal may complain as they have not got the amount of cereal they paid for. A1
- (c) 750 g MA1



- (e) 757 g MA1
 Point plotted on chart MA1
- (f) The eighth sample median is between the upper warning and upper action lines so the process may be out of control. Simon needs to take another sample to check this. A2
- (g) Using the median would conclude Sample 9 is within control but the unusually small mass of one bag of cereal indicates the process may be out of control. A2

8 (a) (i)

Cost £	Freq	Midpt	fx
$250 < x \leq 300$	2	275	550
$300 < x \leq 350$	13	325	4225
$350 < x \leq 400$	17	375	6375
$400 < x \leq 450$	25	425	10625
$450 < x \leq 500$	2	475	950
$500 < x \leq 550$	1	525	525
$\Sigma f =$	60	$\Sigma fx =$	23250

MA2

$$\text{Mean} = \frac{23250}{60}$$

$$= \text{£}387.50$$

M1
A1

- (ii) Decrease the width of each class interval. A1

(b) 176×387.50
 $= \pounds 68200$

M1
 A1

(c) (i) Decrease by 10%

A1

(ii) Decrease by 10%

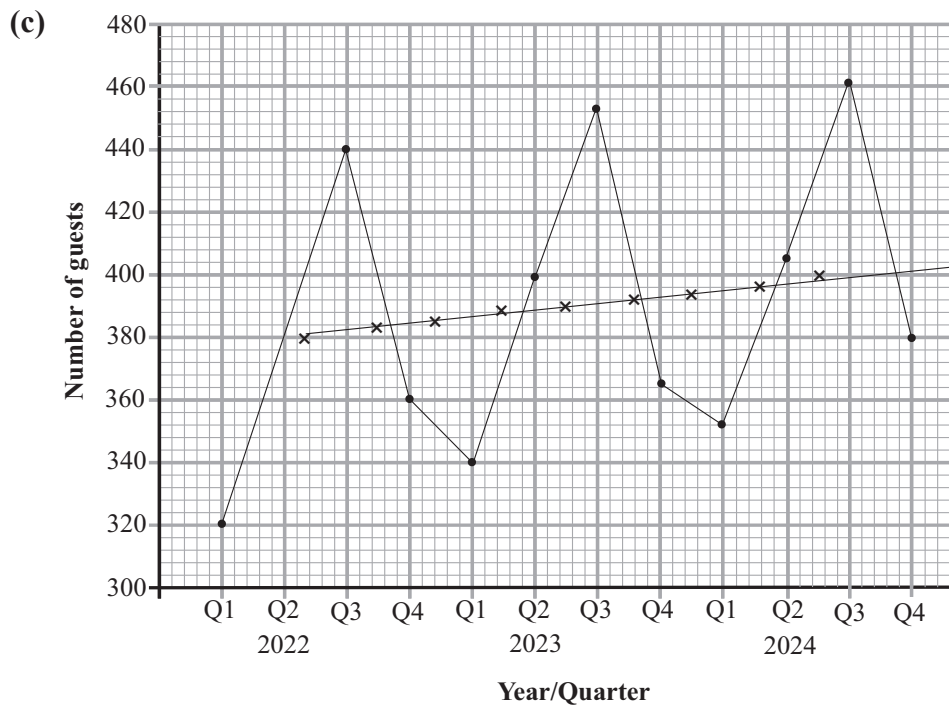
A1

9 (a) 396,400

MA2

(b) The data repeats in cycles of 4.

A1



M1 A2

(d) There was a steady increase in the number of guests staying in the hotel over this period of time

A1

(e) $\frac{404 + 464 + 380 + x}{4} = 400$
 $x = 352$

M1 MA1

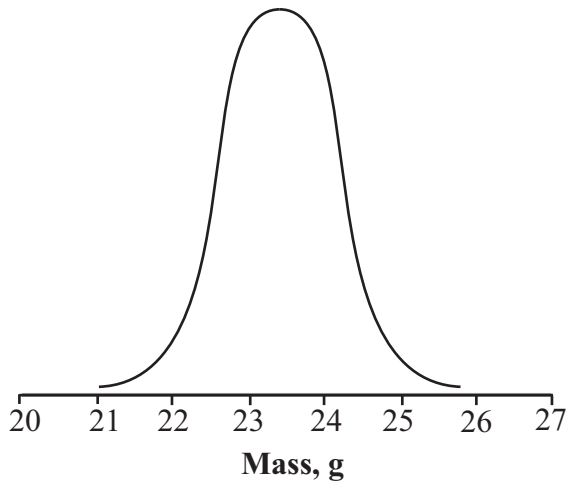
MA1

AVAILABLE
 MARKS

9

10

10 (a)



A2

(b) $z = \frac{25.9 - 23.4}{0.8} = 3.125$
 $3.125 > 3$

M1 MA1

so a biscuit of mass 25.9g is unusual for this distribution

MA1 A1

(c) 21.8 is 2 sd below mean

MA1

$\frac{95}{2} = 47.5\%$

MA1

24.2 is 1 sd above mean

MA1

$\frac{68}{2} = 34\%$

MA1

Total = 47.5 + 34 = 81.5%

A1

11

Total

100