



Rewarding Learning

**General Certificate of Secondary Education
2025**

Statistics

Unit 1

Foundation Tier

[GST11]

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)

			AVAILABLE MARKS
1	(a) 9	MA1	6
	(b) $18 - 13 = 5$	MA1 A1	
	(c) People aged 21-40 are more likely to be employed or have young families so will have less time to volunteer.	A1	
	(d) The data in the population pyramid is presented in groups so it is not possible to identify individual values such as the smallest or largest.	A2	
2	(a) The question does not include a time frame.	A1	6
	(b) Sasha is asking people who are at the recycling centre, so 0 is not a possible response. There is an overlap at 4 in the response boxes.	A1 A1	
	(c) Primary Quantitative	A1 A1	
	(d) Quota sampling.	A1	
3	(a) $9 + 4 = 13$	MA1	6
	(b) Mean = $\frac{(11 \times 0) + (19 \times 1) + (17 \times 2) + (9 \times 3) + (4 \times 4)}{60}$ = 1.6	M1 MA1 A1	
	(c) Range = $4 - 0 = 4$	MA1	
	(d) The number of cars is a discrete variable.	A1	

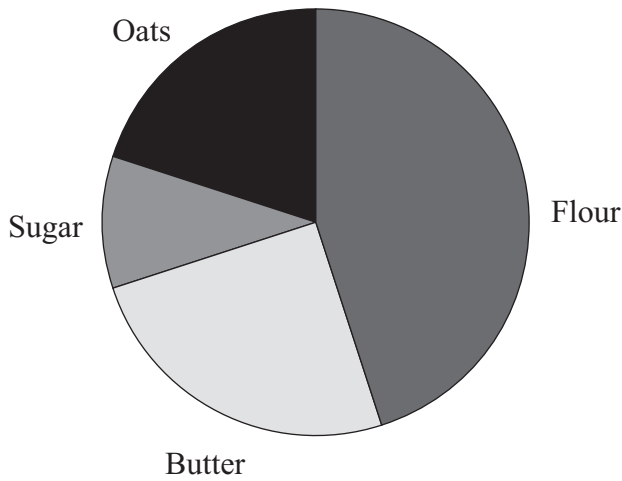
4 (a) The pie chart is drawn in 3D so the exact proportions are not clear. There are no labels on the sectors.

A1

A1

(b) Angles: 162° , 90° , 36° , 72°

MA2



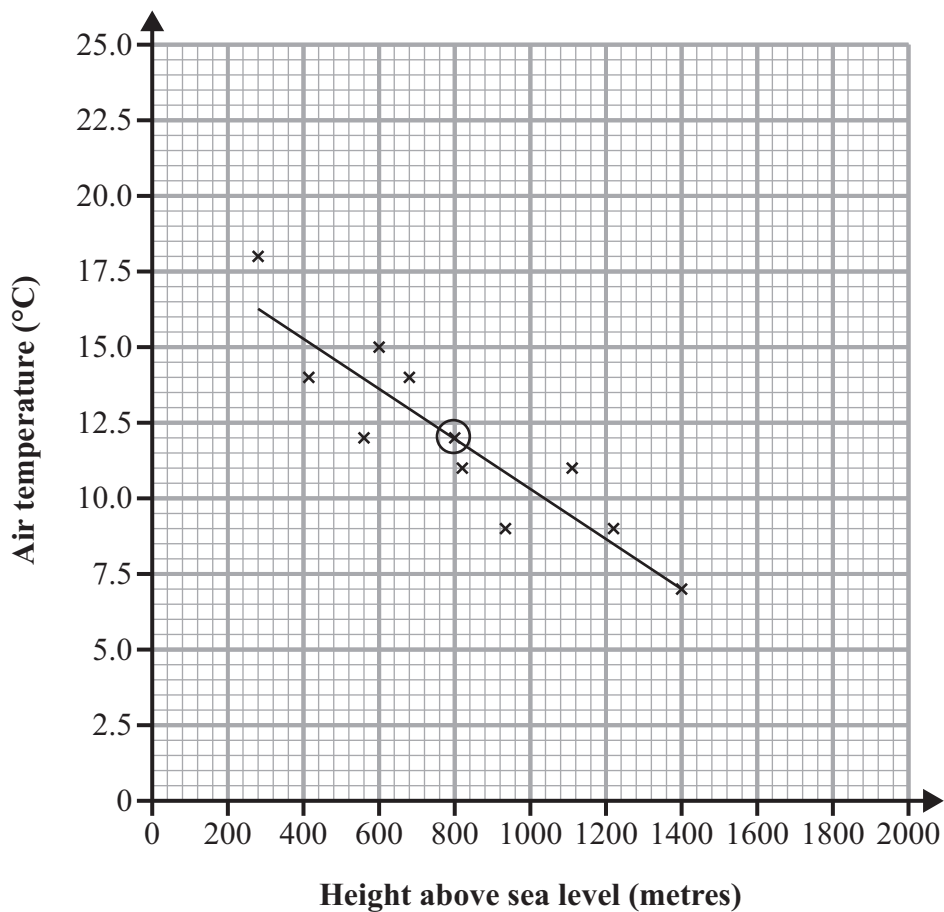
MA2

(c) The size of the angle for oats would increase in size but all other angles would decrease in size.

MA2

8

5 (a)



MA2

(b) The correlation shown in the diagram is negative, so locations further above sea level have lower temperatures.

A2

- (c) (i) 14.5 °C MA1
- (ii) 1040 m MA1
- (d) Pat should not use a line of best fit for his estimate as sea level is at 0 m which is outside the range of plotted heights. MA2

AVAILABLE MARKS

8

6 (a)

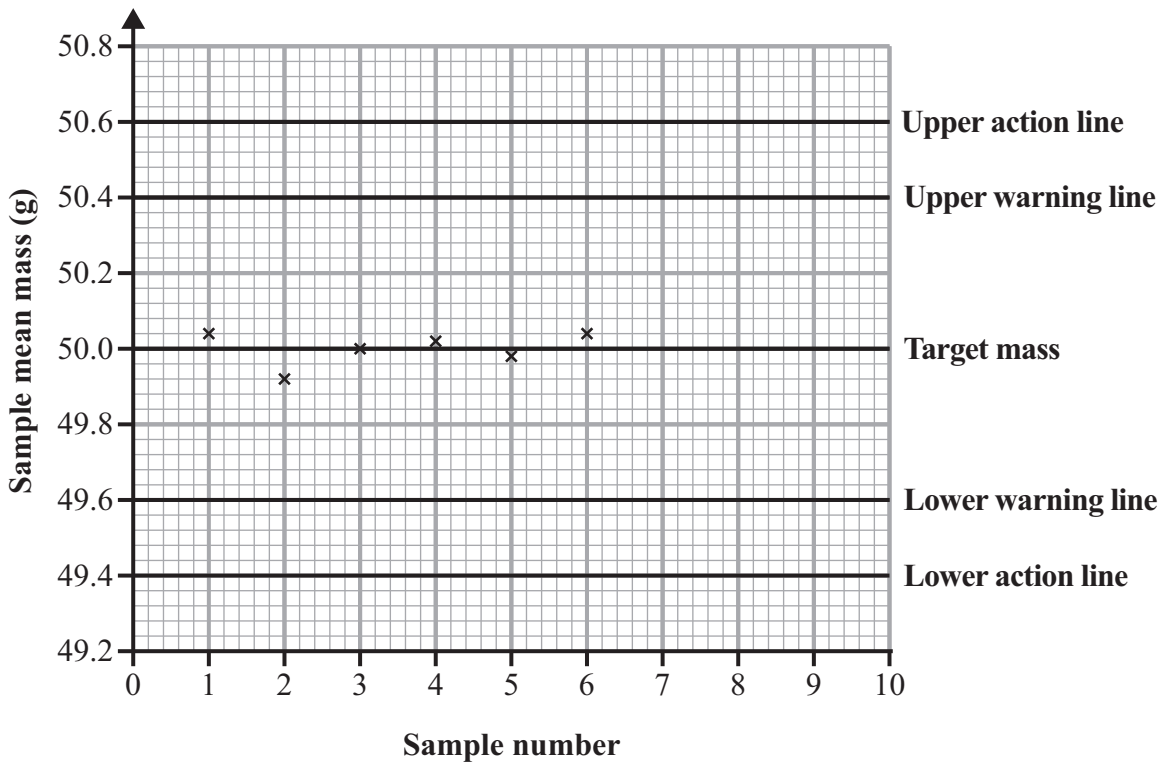
		Main Course			
		Chicken	Beef	Vegetarian	Total
Dessert	Ice Cream	26	24	17	67
	Fruit Salad	33	21	17	71
	Cheesecake	27	15	0	42
Total		86	60	34	180

MA3

- (b) Chicken A1
- (c) Impossible A1
- (d) $\frac{67}{180}$ MA1

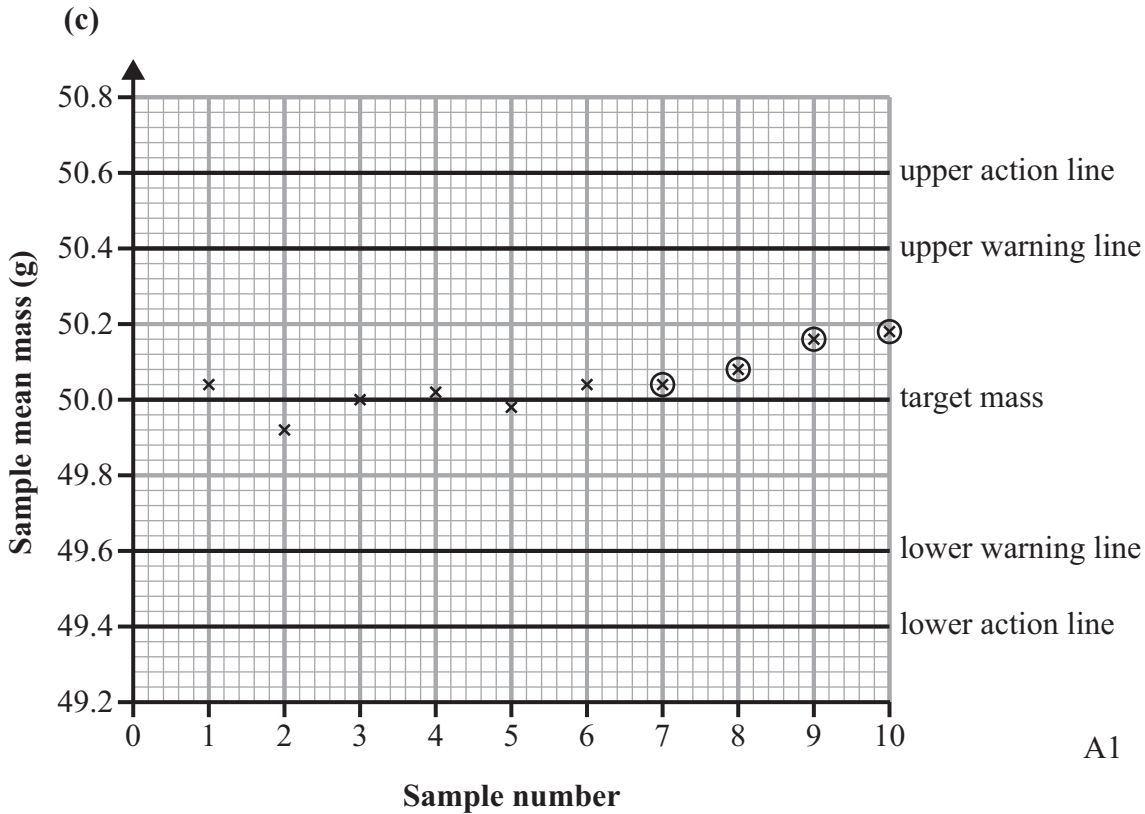
6

7 (a)



MA3

- (b) The points are all close to the target line and well within the warning lines, so the process appears to be under control. A2



(d) The process is still under control as the points are within the warning lines. However, the mean mass appears to be gradually increasing so the values of further sample means should be monitored to see if this pattern continues.

A3

9

8 (a)

	Madrid		Belfast
		0	6 7 7 8 9
	8 8 8	1	1 1 3 5 6 6 7 8
	9 9 7 4 2	2	0 2
	8 7 6 4 4 3 2	3	
	8 1 means 18°C		1 3 means 13°C

MA2 A1

(b) 13°C

MA1

(c) IQR = 17 - 8
= 9°C

MA1
A1

(d) Temperatures in Madrid are higher on average since the median temperature for Madrid is greater than the median temperature for Belfast.
There is more variability among the temperatures in Madrid than among those in Belfast since the interquartile range for Madrid is larger.

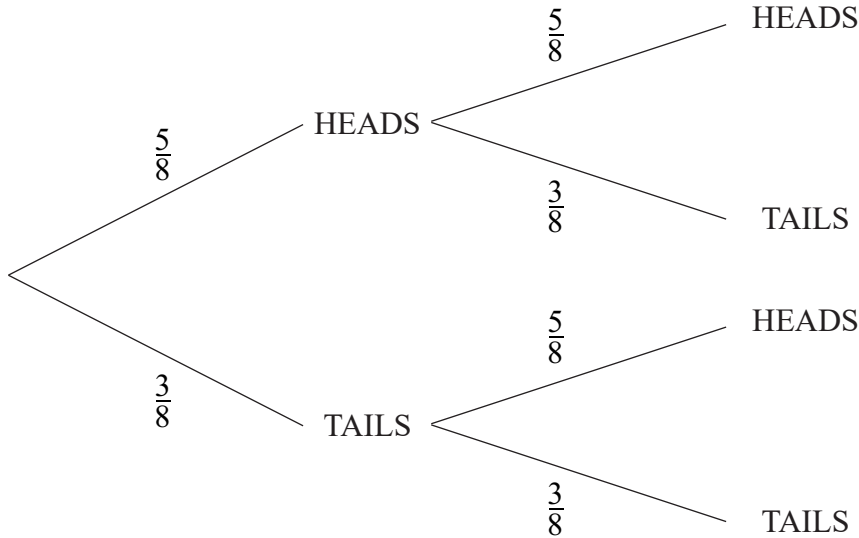
A2

A2

10

9 (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

10 (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

Total

80