# Marking guidance: Higher and Foundation tiers

## 8300 Mathematics

Version 1.0:  October 2023

## Introduction

Teachers have told us that they would like to learn more about how to mark like an examiner. Following the success of our online course entitled 'GCSE Mathematics: Mark scheme guidance and application,' and incorporating valuable feedback from teachers, this document endeavours to outline the fundamental aspects of the marking process.

The examples used in this document are taken from Foundation past papers, however, the principles remain the same for Higher Tier. Our aspiration is that this resource will facilitate a greater understanding of how to apply an AQA mark scheme and improve confidence in awarding marks accurately.

## Types of marks

There are several different types of marks awarded by examiners. M1 means 1 mark, SC2 means 2 marks and so on. Here is a summary of the types of marks used.

| | |
|---|---|
| **M** | Method marks are awarded for a correct method which could lead to a correct answer. |
| **A** | Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied. |
| **B** | Marks awarded independent of method. |
| **ft** | Follow through marks. Marks awarded for correct working following a mistake in an earlier step. |
| **SC** | Special case. Marks awarded for a common misinterpretation which has some mathematical worth. |
| **M dep** | A method mark dependent on a previous method mark being awarded. |
| **B dep** | A mark that can only be awarded if a previous independent mark has been awarded. |

## General guidance

If there are alternative methods in the mark scheme, examiners follow one scheme that awards the students with the most marks. Students cannot score marks from alternative method 1 and alternative method 2 at the same time, for example.

Students will often work out calculations in a different way to that shown in the mark scheme. Accept any equivalent calculation. For example, multiplication may be shown as repeated addition.

## Awarding method marks (M1)

Examiners will award method marks for either a correct calculation or a correct value seen which implies the correct calculation has been completed.

The correct value can be seen anywhere, even as the student's final answer to the question.

### Example:

| Mark scheme says: | 2 × 120  or  240 | M1 |
|---|---|---|
|  | 450 – 120  or  360 | M1 |
|  | 240 and 360 and 330 and Yes | A1 |

### Student response 1

$2 \times 120 = 260$

Answer _____ 260

2 × 120 seen

M1A0

### Student response 2

Answer _____ 240

240, a correct value seen

M1A0

### Student response 3

Answer _____ 260

No calculation given
Incorrect value seen

M0A0

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## Dependent method marks (M1dep)

A dependent method mark can only be awarded if previous method mark(s) have been awarded. However, if an examiner is awarding a method mark for a correct value seen, sight of the correct value stated in the M1dep part of the mark scheme would automatically imply the first mark.

When awarding method marks, examiners will always follow through from values given from correct calculations, even if the values themselves are incorrect. This means that students are allowed to truncate, round or give incorrect evaluations and still be awarded method marks, providing the correct calculation is shown. Sometimes mark schemes use the terms "their" to emphasise this.

### Example:

Mark scheme says:

| | |
|---|---|
| 0.19 + 4 × 0.07  or  0.47 | M1 |
| 150 × their 0.47  or  70.5 | M1dep |
| 70.50 | A1 |

### Student response 1



4 × 0.07 seen shown as repeated addition. 0.19 added to their answer of 2.80 completes the method for the 1st mark

M1M0depA0

### Student response 2



A correct value seen, from the M1dep part of the mark scheme implies they must have completed the 1st step correctly

M1M1depA0

## Student response 3

0.07 × 4 = 2.87

0.19 + 2.87 = 3.06

3.06 × 150 = 459

Answer ___459___

0.07 × 4 seen, and they have added 0.19 to it which completes the 1st stage.
Although 3.06 is incorrect, we will accept anything that comes from correct calculations.

M1M1depA0

## Accuracy marks (B1)

'B' marks are accuracy marks that are awarded independent of method such as for measuring a line, stating a fact, processing a calculation on the calculator, giving explanations or reasons.

### Example:

Mark scheme says:

A and (A =) 14 and (B =) 12          B2

or      (A =) 14  or  (B =) 12          B1

### Student response 1

Which has the bigger perimeter, shape **A** or shape **B**?

You **must** show the lengths of both perimeters.

14          12

14 or 12 seen
Answer incorrect

B1

Answer ___ B ___

### Student response 2

Which has the bigger perimeter, shape **A** or shape **B**?

You **must** show the lengths of both perimeters.

A = 12          B = 14          X

A = ... does not need to be seen, but if it is then it must be correct.
$A \neq 12$ and $B \neq 14$ so cannot score          B0

Answer ___ A ___

## Accuracy marks (A1)

The 'A' mark refers to the mark given for the student's correct final answer. This means that if a student has made an arithmetic slip in their working, although they can potentially score all method marks, they cannot score the A mark. Obtaining the correct final answer without working will score full marks unless the mark scheme states otherwise.

### Example:

| Mark scheme says: | | |
|---|---|---|
| | $180 \div 3$  or  60 | M1 |
| | $(180 – 28) \div 2$  or  $152 \div 2$  or  76 | M1 |
| | 180 – their 60 – their 76 | M1dep |
| | 44 | A1 |

### Student response 1

$$3\overline{)180} = 60$$

$$180 - 28 = 142 \div 2 = 71$$

$$180 - 60 - 71$$

Answer _____ 49

Bus stop division seen
Full calculation seen for the second and third M despite the arithmetic error
Answer is incorrect
M1M1M1depA0

### Student response 2

Answer _____ 44

Correct final answers without working score full marks unless the question states "you must show your working" or "show that…"
M1M1M1depA1

### Student response 3

60

Answer _____ 76

Two correct values seen
It does not matter where we see these values, as long as they do not come from incorrect methods.
M1M1M0depA0

## Follow-through marks (A1ft)

Examiners will follow-through incorrect evaluations of correct calculations when awarding method marks. In this case, the only mark the student cannot obtain is the A mark for the correct final answer. The exception to this, however, is if the scheme states A1ft. Here, the student could obtain the final mark in the scheme despite making a slip up earlier on. This is to prevent students from being penalised twice: losing a mark for an earlier step **and** losing the final mark. Note students cannot score full marks from an A1ft, unless the question is split into parts (a) and (b), where students who do not score full marks in (a) could potentially score full marks in (b).

### Example:

| Mark scheme says: | | | |
|---|---|---|---|
| $(8 - 5) \times 4$ or $3 \times 4$ or $12$ | | M1 | |
| $18 -$ their $12$ or $6$ | | M1 | |
| $7$ (pm) | | A1ft | ft $1 +$ their $6$ with M0M1 |

### Student response 1:



$3 \times 4$ seen
$18 - 12$
8 pm is incorrect
M1M1A0

### Student response 2:



$3 \times 5 = 15$ hours
$15 + 3 = 18$ hours
This is equivalent to
$18 -$ their $12$

Answer is correct for their
$1 + 3$ hours
M0M1A1ft

Note the mark scheme states ft with M0M1. This means we only follow through in this condition.

Student response 3:

$$8 - 5 = 3$$

$$3 \times 4 = 12$$

Answer     5pm

3 × 4 seen

Answer is incorrect

M1M0A0

## Special case marks (SC1)

Special case marks (SC1, SC2) are in the scheme for incorrect final answers that imply the student followed a partially correct method. They can only be awarded if the scheme says so, and students either receive the special case mark(s) or method marks, whichever is greater. Examiners do not need to see any working to award special case marks.

### Example:

Mark scheme says:  9 × 50  or  450        M1

60 + 42  or  102        M1

9 hours 12 minutes   A1      SC2  9 h 32 min  or  6 h 32 min

### Student response 1:

9 × 50 = 4 hours 50 min

142

Answer   6h  32 mn

9 × 50 M1
Answer: 6 h 32 is a special case (SC2). Give the student the greater number of marks.
                    2 marks overall

### Student response 2:

7 hr 50  +  1 hour 42

= 9 h 32 mn

Answer _____

9 h 32 is clearly the student's final answer so gets SC2.
If this was seen in their working and not as their final answer, SC marks would not be awarded.

### Student response 3:

9h 12 mins

Answer   6h 32 mn

Both values are SC but mark the one on the answer line SC2

## Misreads / Miscopy

Students often miscopy values from the question or from their calculator. Where an examiner believes a miscopy is genuine, all method marks can be awarded as usual unless the mark scheme states otherwise. The only marks the student cannot score are A or B marks.

### Example:

| Mark scheme says: | | |
|---|---|---|
| $38 \times 10.8(0)$ or $410.4(0)$ | | M1 |
| $10.8(0) \times 0.25$ or $2.7(0)$ | | M1 |
| $10.8(0) +$ their $2.7(0)$ or $13.5(0)$ | | M1dep |
| $(491.4(0) -$ their $410.4(0)) \div 13.5(0)$ or | 6 | M1dep |
| 44 with $410.4(0)$ and $13.5(0)$ seen | | A1 |

### Student response 1:

$$83 \times 10.80 = 896.4$$
$$10.80 \div 4 = 2.7 + 10.80$$
$$= 13.5$$
$$491.4 - 896.4$$

Answer _____

83 × 10.80 is a misread for 38. This is genuine since they have not made the question any easier for themselves so method marks can be awarded as usual. They lose the A mark.

M1M1M1depM0A0

### Student response 2:

$$40 \times 11 = 440$$
$$11 \times 0.25 = 2.75$$
$$3 + 11 = 14$$

Answer _____ 14

40 × 11 are 38 and 10.8(0) rounded. This is not a misread. Do not award method marks for this, but it is possible they might score elsewhere.

M0M0M0depM0depA0

### Student response 3:

$$38 \times 10.8 = 401.40$$
$$10.80 \times 0.25 = 2.70$$
$$+10.80$$
$$13.50$$
$$(491.4 - 401.4) \div 13.5$$

Answer _____

38 × 10.8 M1
10.8 × 0.25 M1
2.7 + 10.80 M1dep
(491 – 401.4) ÷ 13.5 M1dep
No Answer A0

M1M1M1depM1depA0

## The use of brackets

Values or words shown in brackets in the mark scheme do not need to be seen to award the mark(s). However, if the student does show the value or words contained in the bracket, they must be correct otherwise they cannot score.

Examiners must apply some common sense to this rule; sometimes brackets are included to emphasise the correct order of operations in a calculation. In this case, the calculation contained within the bracket must also be seen. Sometimes values are given in squared brackets to indicate a range of acceptable values. For example [2, 2.75) means to accept values between 2 and 2.75, where 2 is included and 2.75 is not included.

### Example:

Mark scheme says:   1020 ÷ 5 (× 2)  or  204 (× 2)  M1

                            408                         A1

### Student response 1:

$$1020 \div 5 = 112$$

Answer _____

1020 ÷ 5 M1
Answer is incorrect A0
          M1A0

### Student response 2:

$$1020 \div 5 = 204 . \div 2$$
$$204$$

Answer _____ 102 _____

1020 ÷ 5 would have scored M1 on its own, however, they have then ÷ 2 which is equivalent to 1020 ÷ 10.
If students show the bit in brackets in the mark scheme, it must be correct to get the mark.
          M0A0

### Student response 3:

$$1020 \div 5 = 204$$

Answer _____ 408 _____

1020 ÷ 5 M1
408 is correct A1
          M1A1

## Simplification or conversion of a correct answer

In some questions, such as probability questions, once a correct answer has been seen, examiners ignore incorrect attempts at simplifying. The only exception is the use of ratio; if students write the correct probability fraction alongside a ratio they will not score.

### Example:

Mark scheme says:  $\dfrac{7}{60}$  or  [0.116, 0.117]  or  [11.6, 11.7]%    B1

### Student response 1:



$\dfrac{7}{60}$ seen so their incorrect conversion does not matter.

B1

### Student response 2:



$\dfrac{7}{60}$ seen so their incorrect conversion does not matter.

B1

### Student response 3:



$\dfrac{7}{60}$ seen but conversion to a ratio always scores zero in probability.

B0

## Choice

If students use two opposing methods, mark the one leading to the answer on the answer line, ignoring all other methods. If no answer is provided, mark both methods and award the lower number of marks.

### Example:

Mark scheme says:   $7.2^2$ or $9.6^2$          M1

$\sqrt{7.2^2 + 9.6^2}$          M1dep

12          A1

### Student response 1:

$$7.2^2 + 9.6^2 = 144$$

$$\sqrt{144} = 12$$

$$\sqrt{9.6^2 - 7.2^2} = \sqrt{40.32} = 6.34$$

Answer        6.34

Two methods seen; mark the one leading to the answer on the answer line.
$9.6^2$ seen M1 only.
                    M1M0depA0

### Student response 2:

$$\sqrt{7.2^2 + 9.6^2} = 12$$

$$\sqrt{9.6^2 - 7.2^2} = 6.34$$

Answer

Two methods seen, no answer on the answer line. Mark both marks and award the lower number of marks.
$7.2^2$ seen in both M1 only.
                    M1M0depA0

### Student response 3:

$$\sqrt{9.6^2 + 7.2^2}$$

$$\sqrt{9.6^2 - 7.2^2}$$

Answer        12

Two methods seen; mark the one leading to the answer on the answer line.
12 comes from the correct method.
                    M1M1depA1

## When to ignore the rules of choice

In the additional guidance section on certain questions the mark scheme states, for example, "Up to M4 may be awarded for correct work with no, or incorrect, answer, even if this is seen amongst multiple attempts", or in older mark schemes, "Allow M4 even if not subsequently used". These statements mean to override the rules of choice. Any correct values or calculations will be given marks, regardless of whether the student has incorrect methods and values present or uses these values to obtain their final answer.

### Example:

Mark scheme says:

| | |
|---|---|
| $7.2^2$ or $9.6^2$ | M1 |
| $\sqrt{7.2^2 + 9.6^2}$ | M1dep |
| 12 | A1 |

Additional Guidance: "Up to M2 may be awarded for correct work…"

### Student response 1:

$$\sqrt{7.2^2 + 9.6^2} = \sqrt{144} = 12$$
$$9.6^2 - 7.2^2 = 40.32$$
$$\sqrt{40.32} = 6.34$$

Answer _____ 6.34

Fully correct method seen amongst an incorrect attempt. Mark scheme says up to M2 can be awarded.

$\sqrt{7.2^2 + 9.6^2}$ scores M2

Answer is incorrect.

M1M1depA0

### Student response 2:

$$\sqrt{7.2^2 + 9.6^2} = 12$$
$$\sqrt{9.6^2 - 7.2^2} = 6.34$$

Answer _____

No answer on the answer line, but we are told to ignore the rules of choice.

$\sqrt{7.2^2 + 9.6^2}$ scores M2

M1M1depA0

**Student response 3:**

$$\sqrt{9.6^2 + 7.2^2} = 12$$

$$\sqrt{9.6^2 - 7.2^2} = 6.34$$

Answer _____ 12 _____

Two methods seen; mark the one leading to the answer on the answer line.
12 comes from the correct method.

M1M1depA1

## Correct answers from incorrect working

Where a student has clearly obtained correct values from incorrect working, the student will not score marks. This does not necessarily mean, however, that they will score zero for the question, since they may have written a correct calculation or another correct value elsewhere in their working. If it is not clear that the student has obtained correct values from incorrect working, give them the benefit of doubt and award marks as usual.

### Example:

Mark scheme says:

| | |
|---|---|
| 491.4(0) ÷ 10.8(0)  or  45.5 | M1 |
| their 45.5 – 38 | M1dep |
| 7.5 | A1 |
| their 7.5 ÷ 1.25  or  6 | M1dep |
| 44 with 45.5 and 7.5 seen | A1 |

### Student response 1:

$$491.4 - 3.9 = 487.5$$
$$487.5 \div 65 = 7.5$$

Answer    7.5

7.5 seen, but this is a fluke, subtracting 3.9 and dividing by 65 is incorrect.
M0M0depA0M0depA0

### Student response 2:

$$491.40 \div$$

Answer    7.5

7.5 seen and it is not obvious that this has come from an incorrect method. Benefit of doubt given.
M1M1depA1M0depA0

### Student response 3:

$$491.40 \div 10.80$$
$$= 141.70 - 14.2$$
$$= 127.5 \div 17 = 7.5$$

Answer    7.5

7.5 is a fluke, it has come from an incorrect method. However, their first step is correct so M1 can be awarded.
M1M0depA0M0depA0

## Work crossed out

If a student has crossed out their entire answer with nothing else written, mark it. If a student crosses out part of their answer, only mark the part that is **not** crossed out.

### Example:

- Mark scheme says:  $5 \times 12 + 8$  or  68        M1
  
  their $68 \times 2.5$        M1dep
  
  170        A1

### Student response 1:



Answer

Everything has been crossed out, so we can mark it as usual.

$12 \times 5 + 8$ seen M1

M1M0depA0

### Student response 2:



Answer        7.5

Work has been crossed out and replaced. We cannot mark the parts crossed out.

$60 \div 8$ is incorrect.

M0M0depA0

### Student response 3:



Answer        170

Work has been crossed out and replaced. Therefore, we can only mark the value "170". This is the correct final answer so full marks can be awarded.

M1M1depA1

## Poor handwriting or spelling

Apply a common-sense approach to poor handwriting or spelling. Examiners are on the student's side. If their working is correct but, for example, 168.4 looks like 108.4, give them the benefit of doubt and award the marks. Check through the rest of their script for other ambiguous 6s, for example, to help confirm what they have written.

### Example:

| Mark scheme says: | | |
|---|---|---|
| $10.8 \times 8$ or $86.4$ | M1 | |
| $50 \times 110 \times 35$ or $192500$ | M1 | |
| their $192500 \div 1000$ or $192.5$ | M1dep (dep on 2nd M) | |
| their $192.5$ – their $86.4$ | M1dep | |
| $106.1$ | A1 | |

### Student response 1:



Answer _____ 106.1 _____

86.4 seen M1
$50 \times 110 \times 35$ M1
192.5 seen M1dep
192.5 – 86.4 M1dep
Given the full method has been seen, apply benefit of the doubt on their 106.1
    M1M1M1depM1depA1

### Student response 2:



Answer _____

Work is completely illegible.
    M0M0M0depM0depA0

### Student response 3:



Answer _____

86.4 not clearly seen M0
$50 \times 110 \times 35$ M1
$192500 \div 1000$ M1dep
    M0M1M1depM0depA0

## Graph questions

Mark schemes usually allow a $\pm\frac{1}{2}$ square leniency when plotting points and when joining

points with a curve or line. This means that students are allowed to be up to $\frac{1}{2}$ small square

out, in the horizontal or vertical direction (not diagonal).

### Example:

The red cross indicates the exact location where a point should be plotted. The blue cross or line indicates the student's attempt.
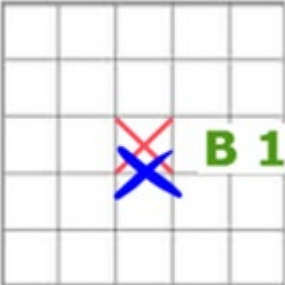
### Student response 1:
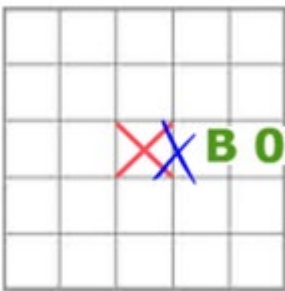
The blue cross is just

over the $\frac{1}{2}$ square

tolerance.

B0

### Student response 2:

Part of the centre of the

blue cross is within $\frac{1}{2}$

square tolerance.

B1

### Student response 3:
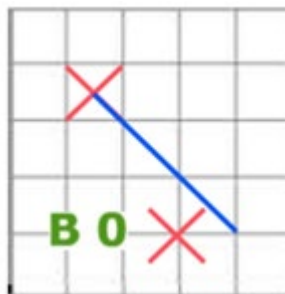
Vertically and horizontally, the blue line is one whole square from the cross so this is out of tolerance.
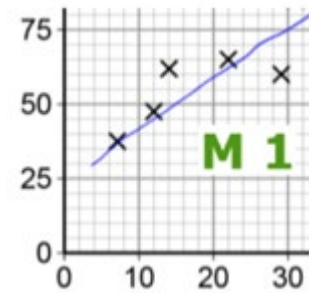
B0

## No ruler

Examiners mark the student's intention. If a reasonably good attempt at a straight line is made without a ruler, we would accept it.

### Example:

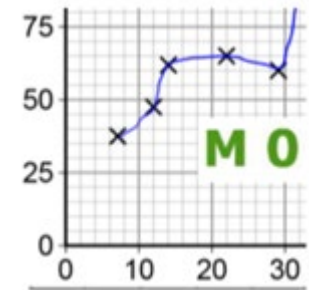Students were required to join a line of best fit through these points.

### Student response 1:



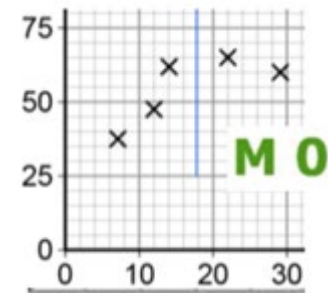The student's intention to draw a straight line of best fit is clear.

B1

### Student response 2:



It is clear that the student did not intend to draw a single straight line.

B0

### Student response 3:



The straight line of best fit is incorrect.

B0

## If you want to learn more

We have an on-demand e-learning 'Mark scheme guidance and application' course available to access on our website.

If you'd be interested in information on joining our team of examiners then please check our website to see if there are any vacancies or to express your interest.