



Joint Council
for Qualifications

GCE Mathematics Aggregation Rules

– Guidance for Centres

June 2008 onwards

Version 2 September 2010

Produced on behalf of:



Why are these rules needed?

The GCE Mathematics aggregation rules were changed in 2008 for two reasons. One was the introduction of the system whereby unit grades are provided to UCAS. The other was the withdrawal of the facility to decline grades and the introduction of the facility to re-use unit results when claiming a second award in the same subject.

Centres will need to be aware of these rules when making their entries if their candidates are

- (i) certificating a mathematics qualification (eg AS Mathematics) before the end of their course;
- or*
- (ii) taking more than one mathematics title (e.g. Mathematics and Further Mathematics);
- or*
- (iii) taking only one title but more than six units.

Since January 2008 candidates have no longer been able to decline the award of a grade issued to them. However, they may re-sit some or all of their units in a subsequent examination series and re-use unit results in an attempt to improve their grade. Once cashed-in, units will be considered to be 'locked' into a qualification title but may be 'unlocked' to be used again. The notes on the following pages explain how this process will work. In the light of the facility to re-use unit results when claiming awards, the locking procedure is needed to avoid units being double-counted for two different titles.

The current rules have been designed so that candidates receive the best grades possible (as under the pre-2008 system), but with the best total uniform marks as well (not always the case under the pre-2008 system). The rules are intended to ensure that candidates receive the best possible set of unit grades and, where candidates have taken extra units, the best units are not left unused.

Grade A* is available from June 2010. Note 3 of appendix 1 explains how the A* grade will be awarded and an example of how it will be applied is given in Note 4 of appendix 1.

There are five rules listed below, although one of them refers to GCE Pure Mathematics only.

A reminder of the rules which were not changed in 2008

All awarding bodies' specifications in Mathematics and Further Mathematics have similar structures, although there are some differences in detail. In this example, the following conventions and units are used

Units C1, C2, FP1, M1, S1 and D1 are AS units.

Units C3, C4, FP2, FP3, M2, M3, S2, S3 and D2 are A2 units.

(Most awarding body specifications have other units in addition to these but they are not required for these illustrations. Please check the actual specification for these additional units and how they may be used.)

A candidate may certificate AS Mathematics with one of the following combinations of the above units:

C1, C2, M1

C1, C2, S1

C1, C2, D1

A candidate may certificate A level Mathematics with one of the following combinations of the above units:¹

C1, C2, C3, C4, M1, M2

C1, C2, C3, C4, S1, S2

C1, C2, C3, C4, D1, D2

C1, C2, C3, C4, M1, S1

C1, C2, C3, C4, S1, D1

C1, C2, C3, C4, M1, D1

A candidate may certificate AS Further Mathematics with any combination of three units which does not include C1–C4 but does include at least one Further Pure unit (FP1, FP2, etc).¹

A candidate may certificate A level Further Mathematics with any combination of six units which does not include C1–C4 but does include at least two Further Pure units (FP1, FP2, etc.) and a total of at least three A2 units.¹

Certification of A level Mathematics and AS Further Mathematics requires nine different units (six units for A level Mathematics and three different units for AS Further Mathematics), even if certification of AS Further Mathematics is in a later series and a unit has been re-taken.

Similarly certification of A level Mathematics and A level Further Mathematics requires twelve different units.

AS Further Mathematics cannot be certificated unless AS Mathematics or A level Mathematics has been certificated, or is being concurrently certificated.

A level Further Mathematics cannot be certificated unless A level Mathematics has been certificated, or is being concurrently certificated.

Where Further Mathematics (Additional) is offered, certification of A level Mathematics, A level Further Mathematics and AS Further Mathematics (Additional) requires fifteen different units and certification of A level Mathematics, A level Further Mathematics and A level Further Mathematics (Additional) requires eighteen different units².

¹ Please check individual awarding body specifications for details of allowed unit combinations.

² In these rules, references to **units**, whether explicit or implicit, are to the **units themselves**, not **unit results**. For example, if a candidate has two unit results for M1, he/she cannot use one of these results to count towards A level Mathematics and the other to count towards AS Further Mathematics.

The Five Rules

Rule 1

Grading of qualifications is determined as follows:

Step (i) maximisation of the qualification **grades** (including A*).

Step (ii) for the qualification grades determined under step (i), the maximisation of the **uniform mark totals** for each qualification.

The maximisation of grades and uniform mark totals for qualification titles is determined using the sequence:

Mathematics; Further Mathematics; Additional Further Mathematics

The highest possible grade is awarded for the first qualification title requested in the above sequence, followed by the highest possible grade for the second qualification title requested in the above sequence (if the candidate has entered for two titles), followed by the highest possible grade for the third qualification title requested in the above sequence (if the candidate has entered for three titles). Only one qualification (AS or A level) is maximised for each title.

For example, if a candidate has entered for AS and A level Mathematics and AS and A level Further Mathematics (ie two titles), the highest possible grade is awarded for A level Mathematics followed by the highest possible grade for A level Further Mathematics. The uniform mark totals for A level Mathematics and Further Mathematics (in that order) are maximised before the AS qualification grades are considered.

For further information please read Note 1 of appendix 1.

Please note: the above maximisation process places, for example,

a grade combination of AU above a grade combination of, say, BE
and

a grade combination of BU above a grade combination of, say, CE.

A request to change a grading combination **that includes an unclassified award** to an arithmetically possible alternative will be granted. No other requests to change grading combinations will normally be allowed.

What does this mean for candidates?

Step (i) was not changed in 2008; for candidates with nine or twelve (or sometimes more) units, the units are distributed in the way which gives the best grades (in the order stated in the box above). Given the appropriate unit results, Mathematics at grade A and Further Mathematics at grade C would be awarded rather than both qualifications at grade B.

However, under the pre-2008 system candidates received the best grade for Mathematics with the lowest possible uniform mark total and then the best grade for Further Mathematics from the remaining unit results. Under the current system, candidates receive the highest possible uniform mark total for Mathematics, while still retaining the best subject grade possible for Further Mathematics. This system normally ensures that a candidate's unit grades in Mathematics are maximised.

For some awarding bodies, awarding A for Mathematics and U for Further Mathematics, rather than B and E, was also a change in practice in 2008.

Example 1:

Consider a candidate with the following unit results:

Unit	C1	C2	C3	C4	FP1	FP2	M1	M2	M3	S1	S2	D1
Uniform mark	90	90	80	80	90	80	85	75	60	85	95	80

Before 2008, awards would have been made as follows

Maths	C1	C2	C3	C4	M1	M2	Total	Grade
Uniform mark	90	90	80	80	85	75	500	A

F.Maths	FP1	FP2	M3	S1	S2	D1	Total	Grade
Uniform mark	90	80	60	85	95	80	490	A

which gives the best possible *grade* for Mathematics using the lowest possible uniform mark total.

However, now, under Step (ii), the same candidate is awarded grades based on the following arrangements of the units.

Maths	C1	C2	C3	C4	M1	S1	Total	Grade
Uniform mark	90	90	80	80	85	85	510	A

F.Maths	FP1	FP2	M2	M3	S2	D1	Total	Grade
Uniform mark	90	80	75	60	95	80	480	A

Thus two A grades are still awarded, as previously, but A level Mathematics now has a total of 510 uniform marks rather than 500. Note also that the unit grades for A level Mathematics are now all As instead of five As and one B, as previously.

The following arrangement of these units gives an even higher uniform mark total for A level Mathematics but it does not satisfy Step (i), which is the maximisation of qualification grades, so it is not used.

Maths	C1	C2	C3	C4	S1	S2	Total	Grade
Uniform mark	90	90	80	80	85	95	520	A

F.Maths	FP1	FP2	M1	M2	M3	D1	Total	Grade
Uniform mark	90	80	85	75	60	80	470	B

Example 2:

Consider a candidate with the following seven unit results:

Unit	C1	C2	C3	C4	M1	M2	S1
Uniform mark	76	74	70	68	70	82	74

Before 2008, this candidate would have been awarded grade B for A level Mathematics with a uniform mark total of 432, using C1–C4, M1 and S1, leaving the unit result for M2 in the bank. Now, grade B with a uniform mark total of 440 will be awarded, leaving the result for S1 in the bank.

If an AS Mathematics award was requested at the same time, previously C1, C2 and M1 would have been used (grade B, 220 uniform marks). Now C1, C2 and S1 will be used (still grade B but with a uniform mark total of 224). Please note that all 3 applications unit results have then been used in the awarding of AS Mathematics and A level Mathematics.

Rule 2

Once grades have been issued, units used towards a qualification award will become 'locked' to that qualification's group. This means that these units can only subsequently be used towards qualification awards in the same 'qualification group' (as defined below); the units cannot be used towards a qualification in a different qualification group.

The groups and levels within the groups are as follows:

Group	Level	Qualification
A: Mathematics	1	AS Mathematics/AS Pure Mathematics [†]
	2	A level Mathematics
B: Further Mathematics	1	AS Further Mathematics
	2	A level Further Mathematics
C: Additional Further Mathematics*	1	AS Further Mathematics (Additional)
	2	A level Further Mathematics (Additional)

*not all awarding bodies offer this group.

[†]Pure mathematics units (ie the C units and FP units) will not be locked when used to certificate any AS award. See Note 2 in appendix 1.

(A level Pure Mathematics is not included in the above table since it cannot be awarded in combination with any qualifications in the GCE Mathematics suite.)

A unit may have been '**single-locked**' by being used towards the award of only one of the qualifications in the group.

OR

A unit may have been '**double-locked**' by being used for the awards of both the AS and the A level qualifications in the group.

A unit that has been 'single-locked' will become 'unlocked' from a qualification group by re-entering the qualification for which it was used.

A unit that has been 'double-locked' will become 'unlocked' by re-entering the A level qualification only.

If a unit is not unlocked by re-entering the appropriate qualification, it is only available for re-use towards qualifications within the group to which it is locked.

What does this mean for candidates?

It means that candidates who use a unit towards AS or A level Mathematics will not be able to use that unit towards AS or A level Further Mathematics, if the unit remains 'locked'. However, that unit will become unlocked if the candidate is re-entered for the AS or A level Mathematics cash-in code.

If candidates wish to re-take one or more units in order to improve a qualification grade, they should be entered for all the qualifications that might be affected. For instance, candidates re-sitting to improve their Further Mathematics results should be re-entered also for Mathematics in case a re-arrangement of all twelve units leads to a better pair of grades. If they are re-entered for Further Mathematics only, the units previously used for Mathematics would remain locked and a re-arrangement of the units across the two qualifications would not be possible.

See also Note 1 in appendix 1 for further elucidation on qualification groups.

See also Note 2 in appendix 1 for examples involving Mathematics and Pure Mathematics.

Rule 3

With the exception of AS Further Mathematics, the **A level qualification** in each group must be awarded before or in the same series as a qualification in a subsequent group.

Candidates are allowed to certificate AS Further Mathematics before they certificate A level Mathematics. However, AS Further Mathematics will not be awarded unless AS Mathematics has already been awarded or is being awarded concurrently with AS Further Mathematics.

(This rule also applies when the qualifications are awarded by more than one awarding body. The awarding body making the qualification award(s) in the higher group must be informed and will request supporting evidence.)

What does this mean for candidates?

A candidate cannot be awarded A level Further Mathematics unless he/she has entered A level Mathematics either previously or concurrently. A candidate cannot be awarded AS or A level Further Mathematics (Additional) unless he/she has entered A level Mathematics and A level Further Mathematics either previously or concurrently.

Candidates who have completed the units for AS Mathematics and AS Further Mathematics in Year 12 may certificate both at the end of that year. However, if continuing to A level in the following year they should re-enter the AS qualifications in order to unlock the units and allow the best possible A level grades to be awarded.

Example 1:

Consider a candidate who achieved the following results in his/her first attempt at A level Mathematics and A level Further Mathematics:

Maths	C1	C2	C3	C4	M1	S1	Total	Grade
Uniform mark	83	81	78	77	85	82	486	A

F.Maths	FP1	FP2	FP3	M2	S2	D1	Total	Grade
Uniform mark	72	70	64	69	68	60	403	C

This candidate was hoping for a grade B in A level Further Mathematics and so decides to re-sit D1 and re-enter for A level Further Mathematics. On achieving 76 uniform marks for D1 on the resit, a grade C for A level Further Mathematics is again awarded.

Maths	C1	C2	C3	C4	M1	S1	Total	Grade
Uniform mark	83	81	78	77	85	82	486	A

F.Maths	FP1	FP2	FP3	M2	S2	D1	Total	Grade
Uniform mark	72	70	64	69	68	76	419	C

However, if this candidate had been re-entered for the cash-in for A level Mathematics as well as the cash-in for A level Further Mathematics, all units would have been unlocked and the twelve could have been re-arranged in such a way to give a grade A for A level Mathematics and a grade B for A level Further Mathematics

Maths	C1	C2	C3	C4	M1	D1	Total	Grade
Uniform mark	83	81	78	77	85	76	480	A

F.Maths	FP1	FP2	FP3	M2	S1	S2	Total	Grade
Uniform mark	72	70	64	69	82	68	425	B

Example 2:

The example shows how grades are affected depending on when entries are made and whether units are unlocked.

Scenario 2a: Previous qualifications not re-entered

Cash-in examination series 1

Unit	C1	C2	C3	C4	M1	S1
Score	80	80	70	60	75	65
AS Maths lock (M)	No*	No			M	
A level Maths lock (M)	M	M	M	M	M	M
	Total			Grade		
AS Maths	235			B		
A level Maths	430			B		

* From rule 2, pure mathematics units (ie the C units and FP units) will not be locked when used to certificate any AS award.

Cash-in examination series 2

Unit	C1	C2	C3	C4	M1	S1	FP1	M2	S2
Score	80	80	70	60	75	65	70	70	65
AS Maths lock (M)	No	No			M				
A level Maths lock (M)	M	M	M	M	M	M			
AS F Maths lock (FM)							No	FM	FM
	Total			Grade					
AS Maths	235			B					
A level Maths	430			B					
AS F Maths	205			C					

In this scenario, the candidate cashes in AS and A level Mathematics in examination series 1 and AS Further Mathematics in examination series 2. Only the newly-taken units can be used for AS Further Mathematics, because the candidate has not re-entered A level Mathematics (and thus has not unlocked the units used in series 1). Note that, for example, M1 is locked to both AS and A level Mathematics (it is 'double-locked') whereas S1 is locked only to A level Mathematics (it is 'single locked').

Scenario 2b: All previous qualifications re-entered

Cash-in examination series 2

Unit	C1	C2	C3	C4	FP1	M1	M2	S1	S2
Score	80	80	70	60	70	75	70	65	65
Result series	1	1	1	1	2	1	2	1	2
AS Maths lock (M)	No	No						M	
A level Maths lock (M)	M	M	M	M				M	M
AS F Maths lock (FM)					No	FM	FM		
	Total			Grade					
AS Maths	225			B					
A level Maths	420			B					
AS F Maths	215			B					

Shading indicates changes from Group 1 (Mathematics) to Group 2 (Further Mathematics) or vice-versa.

In scenario 2b the candidate cashes in all three qualifications in series 2. Irrespective of what has previously been cashed in, all units are now unlocked and available for aggregation for AS and A level Mathematics and AS Further Mathematics. The AS Further Mathematics grade improves from C to B when compared with the outcome of the aggregation in examination series 2 in scenario 2a. However, whilst the grades are unchanged, the uniform mark totals for AS and A level Mathematics are lower.

Example 3:

Seven units locked to group 1: Mathematics

Unit	C1	C2	C3	C4	FP1	M1	M2	S1	S2
Score	70	70	70	60	60	65	70	60	62
Examination series	1	1	2	2	3	2	2	1	3
AS Maths lock (M)	No	No						M	
A level Maths lock (M)	M	M	M	M		M	M		
AS F Maths lock (FM)									
	Total			Grade					
AS Maths	200			C					
A level Maths	405			C					
AS F Maths									

Series 1: AS Mathematics is cashed-in. The grade awarded is C (200 uniform marks), using C1, C2 and S1. The S1 unit is locked to AS Mathematics.

Series 2: A level Mathematics is cashed-in. The grade awarded is C (405 uniform marks), using C1-C4, M1 and M2. These 6 units are locked to A level Mathematics.

Series 3: Two further units, FP1 and S2 are entered. If a cash-in for AS Further Mathematics **only** is entered then the candidate **will not grade** since there are only 2 units not locked to group 1 (Mathematics). The unlocking rule (rule 2) requires **both** AS and A level Mathematics to be re-cashed-in to unlock all units locked to group 1 (Mathematics). The cash-in for **AS** Mathematics is needed in order to unlock S1.

If a cash-in for A level Mathematics and AS Further Mathematics **only** are entered then the candidate will grade as follows:

Unit	C1	C2	C3	C4	FP1	M1	M2	S1	S2
Score	70	70	70	60	60	65	70	60	62
Examination series	1	1	2	2	3	2	2	1	3
AS Maths lock (M)	No	No						M	
A level Maths lock (M)	M	M	M	M		M		M	
AS F Maths lock (FM)					No		FM		FM
	Total			Grade					
AS Maths	200			C					
A level Maths	395			C					
AS F Maths	192			C					

If cash-ins for AS and A level Mathematics and AS Further Mathematics are entered then the candidate will grade as follows:

Unit	C1	C2	C3	C4	FP1	M1	M2	S1	S2
Score	70	70	70	60	60	65	70	60	62
Examination series	1	1	2	2	3	2	2	1	3
AS Maths lock (M)	No	No				M			
A level Maths lock (M)	M	M	M	M		M	M		
AS F Maths lock (FM)					No			FM	FM
	Total			Grade					
AS Maths	205			C					
A level Maths	405			C					
AS F Maths	182			C					

Rule 4

Entitlement to re-enter qualifications

An entitlement to re-cash-in is achieved if:

a unit has been taken or re-sat since the qualification award was last made,

or

there are units in the results bank that have not been locked to a qualification group.

Once satisfied, an entitlement to re-cash-in places no restrictions on the number of cash-in entries that can be made. For example, a candidate with awards for both A level Mathematics and A level Further Mathematics can re-enter both when an entry for just one unit is made.

What does this mean for candidates?

This means that candidates re-sitting one or more units are advised to re-enter for all relevant qualifications to make sure that all units are unlocked and can be re-combined in the best possible way. Thus a candidate who has previously certificated A level Mathematics and A level Further Mathematics and is re-sitting D1 only, say, should be re-entered for both A level Mathematics and A level Further Mathematics in case the twelve units can be re-combined to give a better pair of grades.

The following discussion involves Examples 2 and 3 from Rule 3.

Example 2 discussion

In Scenario 2a of Example 2, the request, in examination series 2, is for AS Further Mathematics only. As Scenario 2b illustrates, a request to re-cash-in A level Mathematics would have resulted in an improved grade combination of BB for A level Mathematics and AS Further Mathematics, rather than BC.

Can the candidate make a subsequent request for A level Mathematics so that this improved grade combination can be awarded?

Yes – if this is a late request made before the specified deadline for late cash-ins within the current examination series.

No – if a request is made in a subsequent examination series.

Reason – the candidate no longer has an entitlement to request cash-ins. (This answer assumes that the candidate has not (re-)entered units in the subsequent examination series since if he/she has then the entitlement to request re-cash-ins is satisfied.)

Example 3 discussion

In Example 3, the candidate did not request a re-cash-in for AS Mathematics and A level Mathematics.

Can the candidate make a subsequent request for AS Mathematics and A level Mathematics?

Yes, whether the request is made in the current, or in a subsequent examination series.

Reason – since there is no lock on the units FP1 and S2, there is an entitlement to re-cash-in AS and A level Mathematics along with a request to cash-in AS Further Mathematics. The two tables at the end of Example 3 show the grades that will be awarded if:

A level Mathematics and AS Further Mathematics are requested,

AS Mathematics, A level Mathematics and AS Further Mathematics are requested.

Rule 5

Certificating A level Pure Mathematics locks unit **results**, not units. That is, unit results used to certificate A level Pure Mathematics can never be used for any qualifications in the GCE Mathematics suite and vice-versa.

Certificating AS Pure Mathematics does not lock anything; neither units nor unit results.

GCE Pure Mathematics

Since Pure Mathematics shares units with the GCE Mathematics qualifications suite (Mathematics, Further Mathematics and, where applicable, Further Mathematics (Additional)), the rules governing the use of these common units has to be at the level of **unit results** (otherwise, once a candidate had certificated Mathematics, he/she could never certificate Pure Mathematics, or vice-versa).

What does this mean for candidates?

This means that candidates who cash-in A level Pure Mathematics cannot subsequently re-use their C1–C4 unit results to cash-in A level Mathematics. However, they may re-take these units and use the new C1 – C4 unit results to count towards an A level Mathematics award.

Candidates who certificate AS Pure Mathematics may use the relevant unit results to count towards an AS or A level Mathematics award or an AS or A level Further Mathematics award* – there is no need to re-take the units in this case.

**For some awarding bodies, the units contributing to AS Pure Mathematics are a subset of the units contributing to A level Mathematics only. For other awarding bodies, this is not the case where FP1 is used in an AS Pure Mathematics award.*

All results for units which have been used to certificate A level Pure Mathematics are locked to that title. Therefore, if a candidate subsequently wishes to enter Mathematics and/or Further Mathematics, he/she must re-enter the relevant C and/or FP units. Only the new results for these units will be eligible to count towards the Mathematics / Further Mathematics awards.

Similarly, a candidate who has certificated A level Mathematics and/or Further Mathematics and who subsequently wishes to enter A level Pure Mathematics must re-enter the relevant C and/or FP units, and only the new results for these units will be eligible to count towards the A level Pure Mathematics award.

Appendix 1

Note 1

The maximisation of grade combinations

	Number of Cash-ins to be Maximised	Group 1 Mathematics	Group 2 Further Mathematics	Group 3 Further Mathematics (Additional)
1.	3	A level	A level	A level
2.	3	A level	A level	AS
3.	2	A level	A level	
4.	2	A level		A level
5.	2		A level	A level
6.	2	A level	AS	
7.	2		A level	AS
8.	2	AS	AS	

Please note:

- (i) Once the higher qualification in each group is maximised, ie A level if the candidate is entered for both AS and A level in that group. the units are 'locked' to that qualification group.

For example, if a candidate is entered for AS and A level Mathematics and AS Further Mathematics, the A level Mathematics and the AS Further Mathematics grades and uniform marks will be maximised. The AS level Mathematics result will be the best valid combination available from the units used in the A level Mathematics aggregation and any other units that have not been locked to either of the other two qualification groups. (In this example, it is known that at least three units are locked to group B (Further Mathematics) as AS Further Mathematics has been awarded.)

- (ii) The maximum number of cash-in grade combinations to be maximised is 3 (when a candidate has entered for 3 titles) or 2 (when a candidate has entered for 2 titles). Reason – once the higher qualification in a group has been graded, the use of units available for the subsidiary qualification grade is constrained by the unit locking process.

For example, if a candidate has entered for AS and A level Mathematics and AS and A level Further Mathematics, the units which can be used for the two ASs are constrained by locking. That is, the grades and uniform mark are maximised for the two A level qualifications before any consideration is given to the maximisation of grades and uniform marks for the two AS level qualifications.

- (iii) The above table illustrates the cash-in request possibilities in the light of the 'no-declines' rule. For example, the 4th row could not be a valid first cash-in request but when re-cashing-in, a candidate could, for example, request A level Mathematics and A level Additional Further Mathematics. Such a candidate will already have an award for A level Further Mathematics; this award will remain unchanged and the units used for the award will be locked to Further Mathematics and, hence, not available for use when maximising the grade combination for Mathematics and Additional Further Mathematics.

- (iv) With reference to the above table, a request for, for example, AS Mathematics and A level Further Mathematics is not included. Such a request will not be graded as a combination. The grade and uniform mark for A level Further Mathematics will be maximised before the grade and uniform mark for AS Mathematics is considered.

The reason for this is that such a request is only valid if A level Mathematics has already been cashed-in. Given this, A level Further Mathematics is given priority over AS Mathematics.

Note 2

Core and Further Pure Mathematics units will not be locked when used to award AS qualifications

Core and Further Pure Mathematics units will not be locked following the award of AS Mathematics, AS Pure Mathematics or AS Further Mathematics but they will become locked when subsequently used for A level Mathematics, A level Further Mathematics* or A level Pure Mathematics. Since the Core and Further Pure Mathematics units that contribute to these AS qualification awards are a subset of both A level Mathematics and A level Pure Mathematics or A level Further Mathematics and A level Pure Mathematics, the locking of unit results only needs to happen when the A level cash-in is requested.

**For some awarding bodies, the units contributing to AS Pure Mathematics are a subset of the units contributing to A level Mathematics only. For other awarding bodies, this is not the case where FP1 is used in an AS Pure Mathematics award.*

The reason for the above arrangement is to reduce unnecessary administration for both centres and awarding bodies. For example, if in an examination series only AS Pure Mathematics is certificated then it is not known if the candidate is intending to follow the A level Mathematics route or the A level Pure Mathematics route. Therefore, there is no way of knowing whether a Mathematics lock or a Pure Mathematics lock should be applied to each of the units.

Example:

(i) A candidate who requests A level Pure Mathematics

Examination series 1 Candidate requests AS Pure Mathematics <u>only</u>				Examination series 2 Candidate requests A level Pure Mathematics			
Unit	Score	AS Lock	A level Lock	Unit	Score	AS Lock (carried forward)	A level Lock
C1	80	No Lock				No Lock	Pure
C2	80	No Lock				No Lock	Pure
C3	70	No Lock				No Lock	Pure
M1	65						
				C4	68		Pure
				FP1	65		Pure
				FP2	60		Pure

These Core and Further Pure unit results are now locked to Pure Mathematics and cannot be used for qualifications in the GCE Mathematics suite.

(ii) A candidate who requests A level Mathematics

Examination series 1 Candidate requests AS Pure Mathematics <u>only</u>				Examination series 2 Candidate requests A level Mathematics			
Unit	Score	AS Lock	A level Lock	Unit	Score	AS Lock (carried forward)	A level Lock
C1	80	No Lock				No Lock	Maths
C2	80	No Lock				No Lock	Maths
C3	70	No Lock				No Lock	Maths
M1	65						Maths
				C4	68		Maths
				S1	60		Maths

The Core unit results are now locked to GCE Mathematics and cannot be used for A level Pure Mathematics. Also, within the GCE Mathematics suite, these units have now been locked to Group 1:

GCE Mathematics and cannot be used in Groups 2 or 3: GCE Further Mathematics and GCE Further Mathematics (Additional) unless, under the unlocking rule, A level Mathematics is re-cashed-in.

(iii) A candidate who requests A level Mathematics

Examination series 1				Examination series 2			
Candidate requests AS Mathematics <u>only</u>				Candidate requests A level Mathematics			
Unit	Score	AS Lock	A level Lock	Unit	Score	AS Lock (carried forward)	A level Lock
C1	80	No Lock				No Lock	Maths
C2	80	No Lock				No Lock	Maths
C3	70						Maths
M1	65	Maths				Maths	Maths
				C4	68		Maths
				S1	60		Maths

The purpose of the above example is to illustrate that it is only the Core mathematics units that are not locked at AS level. Since M1 can only be used within the Mathematics suite, it has been double locked to Group 1: Mathematics.

Note 3 - Awarding A* in the GCE Mathematics Suite of Qualifications

The General Rule

To be awarded a grade A* at GCE A level, a candidate must:

1. Achieve grade A overall for the A level. This can be also be described as having to achieve 80% of the maximum uniform mark

AND

2. Achieve 90% of the combined maximum uniform mark for the A2 units.

For example:

For a 4 unit A level, a candidate must achieve at least 320 of the 400 maximum uniform mark and 180 of the 200 combined maximum uniform mark for the A2 units.

For a 6 unit A level, a candidate must achieve at least 480 of the 600 maximum uniform mark and 270 of the 300 combined maximum uniform mark for the A2 units.

Please note:

- i) The above rules are applied to the best available result for each AS and A2 unit; for each unit, this best available result may be achieved at the first or subsequent sitting
- ii) Grade A* is not available for AS qualifications

The Application of the General Rule to the GCE Mathematics Suite of Qualifications

Since there is flexibility in the use of units in the grading of A level Mathematics, A level Further Mathematics and A level Additional Further Mathematics, there are supplementary rules for the mathematics suite of qualifications. Please note that A level Pure Mathematics conforms to the general rule for the award of an A* grade since it does not have this flexibility of unit use.

For A level Mathematics, A* will be awarded to candidates who have achieved grade A overall (at least 480 of the 600 maximum uniform mark) and at least 180 of the 200 combined maximum uniform mark for the C3 and C4 units³.

For A level Further Mathematics, A* will be awarded to candidates who have achieved a grade A overall (at least 480 of the 600 maximum uniform mark) and at least 270 of the 300 combined maximum uniform mark for their **best** three A2 units (whether pure or application units).

For A level Additional Further Mathematics, A* will be awarded to candidates who have achieved a grade A overall (at least 480 of the 600 maximum uniform mark) and at least 270 of the 300 combined maximum uniform mark for their **best** three A2 units (whether pure or application units).

For reference: AS units are C1, C2, FP1, S1, M1, D1; all other units are designated as A2.
For information: C denotes core pure mathematics, FP denotes further pure mathematics, S denotes statistics, M denotes mechanics and D denotes decision mathematics.

Illustrative Examples

A level Mathematics

Example 1

C1 = 90, C2 = 79, **C3 = 95, C4 = 94**, M1 = 87, M2 = 89

Total: 534 uniform marks C3 + C4 total: 189 uniform marks Grade awarded: **A***

Example 2

C1 = 95, C2 = 98, **C3 = 92, C4 = 87**, D1 = 87, D2 = 89

Total: 548 uniform marks C3 + C4 total: 179 uniform marks Grade awarded: **A**

Example 3

C1 = 90, C2 = 92, **C3 = 91, C4 = 92**, M1 = 56, D1 = 58

Total: 479 uniform marks C3 + C4 total: 183 uniform marks Grade awarded: **B**

A level Further Mathematics

Example 4

FP1 = 93, **FP2 = 91**, S1 = 95, **S2 = 91**, D1 = 89, **D2 = 80**

Total: 539 uniform marks Best A2 total: 262 uniform marks Grade awarded: **A**

Example 5

FP1 = 80, FP2 = 86, **M2 = 94**, M3 = 85, **M4 = 88, M5 = 89**

Total: 522 uniform marks Best A2 total: 271 uniform marks Grade awarded: **A***

³ The general rule has to be adapted for A level Mathematics since C3 and C4 are the only A2 units that must be included in the A Level aggregation.

Note 4 – An example illustrating the maximisation of A*

All units	Result	All Maths units	Result	All Further Maths units	Results for units used for Further Maths in each aggregation set				
					Set 1	Set 2	Set 3	Set 4	Set 5
C1	90	C1	90						
C2	90	C2	90						
C3	90	C3	90						
C4	90	C4	90						
FP1	90			FP1 (AS)	90	90	90	90	90
FP2	90			FP2 (A2)	90	90	90	90	90
M1	90	M1	90	M1 (AS)	90	90			90
S1	80	S1	80	S1 (AS)		80		80	
S2	85	S2	85	S2 (A2)		85	85	85	85
S3	80			S3 (A2)	80	80	80	80	80
D1	90	D1	90	D1 (AS)	90		90		
D2	95	D2	95	D2 (A2)	95		95	95	95

Possible aggregation sets

Award	Set	Units used for Maths	Total uniform mark for Maths	Total um for Further Maths for each aggregation set				
	1	S1, S2	525	535				
	2	D1, D2	545		515			
	3	M1, S1	530			530		
	4	M1, D1	540				520	
	5	S1, D1	530					530
	Total uniform mark for 3 best A2 units:			265	255	270	270	270

Grade:	A*		A	A	A*	A*	A*
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The above example illustrates the need to maximise the qualification grade for A level Further Mathematics as well as for A level Mathematics when the A* is introduced in 2010.

Set 2 maximises the uniform mark for the A level Mathematics award. However, it results in an A level Further Mathematics grade A when an A* is achievable.

Set 4 maximises the A level grades and then the uniform mark totals. The total uniform mark for A level Mathematics is the second highest that is possible, not the highest.

The highlighted unit results are those that are used to determine if the award of A* is possible.