AQA Qualifications

GCSE
MATHEMATICS (linear)

4365/2H

Mark scheme

4365

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Version 1.0: Final

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

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.
Q	Marks awarded for quality of written communication.
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.
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.
oe	Or equivalent. Accept answers that are equivalent. e.g. accept 0.5 as well as $\frac{1}{2}$
[*a*, *b*]	Accept values between *a* and *b* inclusive.
[*a*, *b*)	Accept values $a \leq$ value $< b$
25.3 …	Allow answers which begin 25.3 e.g. 25.3, 25.31, 25.378.
Use of brackets	It is not necessary to see the bracketed work to award the marks.

Examiners should consistently apply the following principles

Diagrams

Diagrams that have working on them should be treated like normal responses. If a diagram has been written on but the correct response is within the answer space, the work within the answer space should be marked. Working on diagrams that contradicts work within the answer space is not to be considered as choice but as working, and is not, therefore, penalised.

Responses which appear to come from incorrect methods

Whenever there is doubt as to whether a candidate has used an incorrect method to obtain an answer, as a general principle, the benefit of doubt must be given to the candidate. In cases where there is no doubt that the answer has come from incorrect working then the candidate should be penalised.

Questions which ask candidates to show working

Instructions on marking will be given but usually marks are not awarded to candidates who show no working.

Questions which do not ask candidates to show working

As a general principle, a correct response is awarded full marks.

Misread or miscopy

Candidates often copy values from a question incorrectly. If the examiner thinks that the candidate has made a genuine misread, then only the accuracy marks (A or B marks), up to a maximum of 2 marks are penalised. The method marks can still be awarded.

Further work

Once the correct answer has been seen, further working may be ignored unless it goes on to contradict the correct answer.

Choice

When a choice of answers and/or methods is given, mark each attempt. If both methods are valid then M marks can be awarded but any incorrect answer or method would result in marks being lost.

Work not replaced

Erased or crossed out work that is still legible should be marked.

Work replaced

Erased or crossed out work that has been replaced is not awarded marks.

Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This should be penalised by 1 mark unless instructed otherwise.

Paper 2 Higher Tier

Q	Answer	Mark	Comments
1	9×9 or 81 or 9×3 or 27 or $\frac{1}{2} \times 9 \times 6$ or 27 or $\frac{1}{2} \times \frac{9}{2} \times 6$ or 13.5 or $\frac{1}{2} \times (3 + 9) \times \frac{9}{2}$ or 27	M1	
	$9 \times 3 + \frac{1}{2} \times 9 \times 6$ or $27 + 27$ or $9 \times 9 - 2 \times \frac{1}{2} \times \frac{9}{2} \times 6$ or $81 - 27$ or $2 \times \frac{1}{2} \times (3 + 9) \times \frac{9}{2}$ or 2×27	M1dep	
	54	A1	

Q	Additional Guidance	Mark
1	Beware of 27 from wrong working, e.g. $9 + 3 + 3 + 6 + 6$	
	$9 \times 3 = 27$, $9 \times 6 = 54$	M1M0A0
	Just $9 \times 6 = 54$	M0M0A0
	The second M1 is for a fully correct method	
	A fully correct method with further working loses the second M1	

2(a)	0.3 or $\frac{3}{10}$ or 30%	B1	oe

Q	Answer	Mark	Comments
2(b)	0.11 or $\frac{11}{100}$ or 11%	B1	oe
2(c)	200 × 0.15 or $\frac{30}{200}$	M1	oe
	30	A1	

Q	Additional Guidance	Mark
2(c)	$\frac{30}{200}$ (do not allow any other fractions) e.g. $\frac{3}{20}$ scores M0 No misreads allowed	M1A0

3	0.15 × 65.5(0) or 9.825 or 9.82 or 9.83 or 6.55 + 3.27(5) or 6.55 + 3.28 or 6.5... + 3.2...	M1	oe 0.85 or 85% seen or implied
	55.675 or 65.5(0) – their 9.825	M1dep	0.85 × 65.5
	55.67 or 55.68	Q1	strand (i) correct money notation

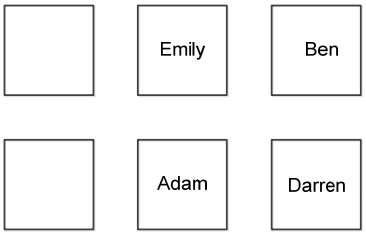
Q	Additional Guidance	Mark
3	Do not accept £55.67p for the Q mark If they use the wrong value with a fully correct method they can score M1M0Q0, e.g. 0.15 ×15.50 = 2.325 15.50 – 2.33 = 13.17	

Q	Answer	Mark	Comments
4	**Alternative Method 1**		
	$D = 260$	B1	May be on diagram
	$A = 30$	B1	May be on diagram
	360 – (30 + their 260 + their 30)	M1	oe
	40	A1ft	ft their 260 and 30
	Alternative Method 2		
	$S = 50$ (and $R = 150$)	B2	B1 for $R = 150$ May be on diagram
	180 – (90 + their 50)	M1	oe
	40	A1ft	ft their 150 and 50

Q	Additional Guidance	Mark
4	**MARK THE BEST EFFORT** Beware of 30, this must be linked to angle A unless clear method shown, e.g. 90 – 60 = 30 is clearly angle A Answer 40 from no working is zero marks No ft from *R* to *S* Beware of an incorrect method for finding *S*, e.g. *R* = 160 and *S* = 50 scores B0	

5	Emily, Ben, Cath Adam, Darren, [ ]	B3	B2 for 2 conditions met B1 for 1 condition met

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
5	 Ben is 045 from Adam Darren is 135 from Emily It's ok for students to put their answer at the top of the page but the bottom plan takes precedence Allow abbreviated names If a name appears twice then conditions involving that person can't be met	B2

6(a)	Appropriate key	B1	
	Stem 1, 2, 3, 4	B1	
	Leaves correct and ordered 1 3 1 4 5 8 9 0 3 5 9 1 4 7 8	B1	
	Appropriate alignment of leaves	Q1ft	ft their single digit leaves Strand (ii) Consistent gaps so that row length represents the number of data it contains

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
6(a)	To award Q1ft there must be at least 2 leaves in at least 3 rows Ignore commas between numbers Ignore 0 and/or 5 on the stem for the stem mark Ignore 0 and/or 5 on the stem unless there are leaves for the third B mark If stem is 4, 3, 2, 1 then the order can be increasing or decreasing, if the stem is 1, 2, 3, 4 then the order should be increasing Key can be 0 / 4 to represent 4 people but not … / 4 for example 2 digit leaves cannot score the third B1 or the Q mark	

6(b)	32	B1	

7(a)	$15ab$	B2	B1 for $3a \times 5b$ B1 for partially simplified answer B1 for $15 \times ab$

Q	Additional Guidance	Mark
7(a)	Penalise further working, e.g. 3a × 5b = 15ab = 3(5ab) gets B1 15ba A = 15ab A(15ab) 15ab cm^2 A(3a × 5b) (3a)(5b) 3a5b 15(ab) 3(5ab) ab15 $(15ab)^2$ $15ab^2$ $(3a \times 5b)^2$ $3a \times 5b^2$	 B2 B2 B2 B2 B1 B1 B1 B1 B1 B1 B0 B0 B0 B0

Q	Answer	Mark	Comments
7(b)	315 ÷ 15 or 21 seen	M1	
	7 and 3 in any order	A1	SC1 for 15 and 21 or 9 and 35

Q	Additional Guidance	Mark
7(b)	1 and 21 on the answer line	M1A0

8(a)	–4 and 5	B2	B1 for each

8(b)	5 correctly plotted coordinates	M1	ft their –4 and their 5 tolerance ± ½ square
	Smooth curve passing through their 5 points	A1	ft their plotted points tolerance ± ½ square

8(c)	–1 and 2.5	B2	B1 for each

Q	Additional Guidance	Mark
8(c)	Do not accept coordinates	

9(a)	$\pi \times 15^2$ or [706, 707]	M1	oe
	$\pi \times 15^2 \times 50$ or [706, 707] × 50	M1dep	oe Accept [35 300, 35325)
	[35 325, 35 350]	A1	11 250 π

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
9(a)	Sight of $\pi \times 15^2$ anywhere in the working is at least M1, e.g. $2 \times \pi \times 15 \times 15 = 1413.7$ scores 1 mark If a student gives the answer 11250π and then works this out then they must work it out correctly for the final A mark, e.g. $11250\pi = 35342.9$ scores full marks but $11250\pi = 33750$ scores two marks	M1M0A0

9(b)	**Alternative method 1**		
	33 000 ÷ 1000 or 33	M1	oe 0.22 × 1000 or 220
	their 33 ÷ 0.22 or 150	M1	oe 33 000 ÷ their 220
	their 150 ÷ 60	M1	oe
	2.5	A1	
	Alternative method 2		
	0.22 × 60 or 13.2	M1	0.22 × 60 or 13.2
	their 13.2 × 1000 or 13 200	M1	33 000 ÷ 1000 or 33
	33 000 ÷ their 13 200	M1	33 ÷ their 13.2
	2.5	A1	
	Alternative method 3		
	0.22 × 1000 or 220	M1	
	their 220 × 60 or 13 200	M1	
	33 000 ÷ 13 200	M1	
	2.5	A1	

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
9(b)	The three M marks can be done in any order Alternative method: 33 000 ÷ 0.22 or 150 000 150 000 ÷ 1000 or 150 150 ÷ 60 2.5 An initial step of 33000 × 0.22 or 7260 cannot score any marks	 M1 M1 M1 A1 M0M0M0 A0

10	$13^2 - 10^2$	M1	oe 169 – 100 or 69
	$\sqrt{13^2 - 10^2}$ or $\sqrt{69}$	M1dep	
	8.3(…) or 8	A1	Accept 3rd side > 8 or > 7
	31.(…) and 33 and 29 or > 30 and 33 and 29	A1ft	ft their 8.3(…) + 10 + 13 Accept 3rd side > 8 or > 7 or perimeter > 30
	$\frac{1}{3}$	A1ft	oe ft their 31.3 and their 33 and their 29 (at least 2 correct) SC1 for 33 and 29

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
10	Students must use Pythagoras' Theorem (or an accurate scale drawing of the middle triangle) to score any method marks on this question Do not accept 1 in 3, 1 out of 3, unlikely, etc. Accept $\frac{1}{3}$ plus words unless contradictory, e.g. $\frac{1}{3}$, unlikely is ok $\frac{1}{3}$ with no working scores no marks An accurate scale drawing of the middle triangle with a statement that the third side is greater than 7 is at least three marks Correct use of Pythagoras' Theorem with 31.(…) and an answer of $\frac{1}{3}$ but no 33 or 29 scores 4 marks	M1M1A1A0 A1

11	250 ÷ 5 or 50 or 250 × 3 or 750 or 250 × 2 ÷ 5 or 100 or 0.12 × 250 or 30	M1	oe
	$\frac{250\times3}{5}$ or 150 or 250 – their 100 or 150 or their 30 ÷ 5 or 6 or their 30 × 3 or 90	M1	oe
	0.12 × $\frac{250\times3}{5}$ or 0.12 × 150 or their 30 ÷ 5 × 3	M1	oe
	18	A1	
	20	B1ft	ft 360 ÷ their 18 (rounded up if non integer)

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
11	For their final answer, if their 20 is not a whole number then must round answer up correctly to get the final B mark For those who work out 88% of 150 giving an answer of 132 they will score M1M1 for the 150 150, 18, 132, 3 weeks 150, 18, 132	 M1M1M0 A0B1ft M1M1M0 A0B0

12	2700 ÷ 180 or 15 seen or Posts = 16 or Beams = 30	M1	
	Posts = 16 and Beams = 30	A1	
	5(30 + 2 × 16)	M1	
	310	A1	SC2 for 15 seen and 5(their 30 + 2 × their 16) correctly evaluated SC1 for 5(their 30 + 2 × their 16) correctly evaluated

Q	Additional Guidance	Mark
12	Their 310 must be in correct money notation	

Q	Answer	Mark	Comments
13	Correctly evaluated trial	M1	e.g. $2^4 - 10 = 6$
	Obtains $3 \leq x \leq 4$	M1	
	Obtains $3.3 \leq x \leq 3.4$ or Two correct trials [3.25, 3.35] which bracket 0	A1	
	Test 3.35 and concludes 3.3 or Two correct trials [3.25, 3.35] which bracket 0 and 3.3 for final answer	Q1	Strand (ii) Using 2 dp to ensure 1 dp

Q	Additional Guidance	Mark
13	**CORRECT ANSWER WITH NO WORKING SCORES ZERO** 3 → – 2 3.1 → – 1.4(…) 3.2 → – 0.8(…) 3.3 → – 0.15(…) or – 0.2 3.4 → 0.556(…) or 0.56 or 0.6 3.5 → 1.3(…) 3.6 → 2.1(…) 3.7 → 2.996(…) or 3 3.8 → 3.9(…) 3.9 → 4.9(…) 4 → 6 3.3 → – 0.15(…) or – 0.2 3.31 → – 0.082 3.32 → – 0.013 3.33 → 0.056 3.34 → 0.126 3.35 → 0.196 3.36 → 0.267 3.37 → 0.339 3.38 → 0.411 3.39 → 0.483 3.4 → 0.556(…) or 0.56 or 0.6 Also useful 3.25 → – 0.486	

Q	Answer	Mark	Comments
14	$\frac{5}{6}$ costs (£)1.2(0)	B1	oe
	$\frac{1.2 \times 6}{5}$	M1	oe
	1.44	A1	144p SC2 for answer 0.72 or 72p
15(a)	$\frac{3 + x}{4} = \frac{9}{5}$	B1	

Q	Answer	Mark	Comments
15(b)	**Alternative Method 1**		
	$9(3 + x) = 4 \times 5$	M1	$3 + x = 4 \times \frac{5}{9}$
	$27 + 9x = 20$	M1dep	$3 + x = \frac{20}{9}$
	$9x = 20 – 27$	M1dep	$x = \frac{20}{9} – 3$
	$-\frac{7}{9}$ or –0.77... or –0.78	A1	oe
	Alternative Method 2		
	$4(3 + x) = 5 \times 9$	M1	$3 + x = 9 \times \frac{5}{4}$
	$12 + 4x = 45$	M1dep	$3 + x = \frac{45}{4}$
	$4x = 45 – 12$	M1dep	$x = \frac{45}{4} – 3$
	$\frac{33}{4}$ or 8.25	A1	oe
	Alternative Method 3		
	$4(3 + x) = 5 \times 9$	M1	$3 + x = 5 \times \frac{9}{4}$
	$12 + 4x = 45$	M1dep	$3 + x = \frac{45}{4}$
	$4x = 45 – 12$	M1dep	$x = \frac{45}{4} – 3$
	$\frac{33}{4}$ or 8.25	A1	oe

Q	Answer	Mark	Comments
15(b) Cont.	**Alternative Method 4**		
	$5(3 + x) = 4 \times 9$	M1	$3 + x = 4 \times \frac{9}{5}$
	$15 + 5x = 36$	M1dep	$3 + x = \frac{36}{5}$
	$5x = 36 – 15$	M1dep	$x = \frac{36}{5} – 3$
	$\frac{21}{5}$ or 4.2	A1	oe

Q	Additional Guidance	Mark
15(b)	$\frac{3}{4}+\frac{x}{4}=\frac{9}{5}$ $\frac{x}{4}=\frac{9}{5}-\frac{3}{4}$ $x=\left(\frac{9}{5}-\frac{3}{4}\right)\times 4$ $x=\frac{21}{5}$ If students use a different equation than that chosen in part (a) they can only score a maximum of 3 out of 4, unless they choose the correct equation	M1 M1dep M1dep A1

Q	Answer	Mark	Comments
16	**Alternative Method 1**		
	tan 50 = $\frac{h}{24}$	M1	tan 40 = $\frac{24}{h}$
	24 × tan 50 or [28.5, 29]	M1dep	24 ÷ tan 40 or [28.5, 29]
	$\frac{1}{2}$ × 24 × 24 tan 50	M1dep	$\frac{1}{2}$ × 24 × (24 ÷ tan 40)
	[342, 348]	A1	
	340 or 350	B1ft	Must ft from their 3sf answer if seen
	Alternative Method 2		
	cos 50 = $\frac{24}{x}$	M1	sin 40 = $\frac{24}{x}$
	24 ÷ cos 50 or [37.3, 37.5]	M1dep	24 ÷ sin 40 or [37.3, 37.5]
	$\frac{1}{2}$ × 24 × their 37.3 × sin 50	M1dep	
	[342, 348]	A1	
	340 or 350	B1ft	Must ft from their 3sf answer if seen
	Alternative Method 3		
	$\frac{x}{\sin 50} = \frac{24}{\sin 40}$	M1	$\frac{x}{\sin 90} = \frac{24}{\sin 40}$
	$\frac{24 \sin 50}{\sin 40}$ or [28.5, 29]	M1dep	$\frac{24}{\sin 40}$ or [37.3, 37.5]
	$\frac{1}{2}$ × 24 × 24 tan 50	M1dep	$\frac{1}{2}$ × 24 × their 37.3 × sin 50
	[342, 348]	A1	
	340 or 350	B1ft	Must ft from their 3sf answer if seen

Q	Answer	Mark	Comments
17(a)	Fully correct box plot with minimum = 65 LQ = 70 median = 80 UQ = 85 maximum = 95	B2	B1 for 3 correct

Q	Additional Guidance	Mark
17(a)	Minimum and maximum values can be marked with a cross or a plus	

17(b)	LQ = 75	B1	Need not be plotted
	UQ = 90	B1	Need not be plotted
	Minimum = 60 **or** maximum = 100 **or** median = 80	B1	Need not be plotted
	Minimum = 60 **and** maximum = 100 **and** median = 80 **and** box plot drawn	B1	

Q	Additional Guidance	Mark
17(b)	Box plot takes precedence over any written answers	

18	$45^2 + 60^2 - 2 \times 45 \times 60 \times \cos 110$	M1	[7461, 7472]
	$\sqrt{45^2 + 60^2 - 2 \times 45 \times 60 \times \cos 110}$	M1dep	
	[86.3, 86.5] or 86	A1	

Q	Answer	Mark	Comments

Q	Additional Guidance	Mark
18	If they extend the base to form a right-angled triangle then the mark scheme still works, i.e. AD = 45 cos70 = 15.3909 DC = 45 sin70 = 42.2861 BD = 15.3909 + 60 = 75.3909 $BC^2 = 75.3909^2 + 42.2861^2$ (first M1 here) $BC^2 = 5683.78 + 1788.11 = 7471.89$ BC = $\sqrt{7471.89}$ (second M1 here) BC = 86.44 (full marks)	 M1 M1 A1

19	**Alternative method 1**		
	39.5 or 24.5 or 40.5 or 25.5 or 965 or 975	B1	
	One correctly evaluated trial using at least one bound or one correctly evaluated trial giving an answer in range 965 to 975	M1	eg 39.5 × 24.5 = 967(.75) or 39.7 × 24.5 = 972(.65) or 40.5 × 25.5 = 1032(.75) Trial values must be in range of bounds
	Ticks cannot tell and 965 seen and One correctly evaluated trial giving an answer in range 965 to 970 or Ticks cannot tell and 975 seen and One correctly evaluated trial giving an answer in range 970 to 975	A1	 eg 967.75 eg 972.6

Q	Answer	Mark	Comments
19 cont.	**Alternative method 2**		
	One correctly evaluated trial giving an answer below 970 (or their value [965, 975])	M1	
	One correctly evaluated trial giving an answer below 970 (or their value [965, 975]) and One correctly evaluated trial giving an answer above 970 (or their value [965, 975])	M1dep	
	Ticks cannot tell and One correctly evaluated trial giving an answer below 970 (or their value [965, 975]) and One correctly evaluated trial giving an answer above 970 (or their value [965, 975])	A1	eg 967.75 and 1032.75 or 967.75 and 1000 or 967.75 < 975 < 1032.75

Q	Additional Guidance	Mark
19	Trial values must be within range of bounds, e.g. 39.5 × 26 = 1027 scores B1M0 25 × 40 = 1000 on its own scores zero but see Alt method 2	

Q	Answer	Mark	Comments
20	**Alternative method 1**		
	y α R^2 or y = kR^2	M1	oe
	24 = k(4)^2 or $\frac{24}{4^2}$ or 1.5	M1dep	oe
	$\frac{1350}{24}$ × 16	M1dep	oe
	900	A1	
	(R =) 30 or – 30	A1	Either value
	Alternative method 2		
	$\frac{R^2}{4^2}$	M1	oe $\frac{4^2}{R^2}$
	$\frac{1350}{24} = \frac{R^2}{4^2}$	M1dep	oe $\frac{24}{1350} = \frac{4^2}{R^2}$
	$\frac{1350}{24}$ × 16	M1dep	oe
	900	A1	
	(R =) 30 or – 30	A1	Either value

Q	Additional Guidance	Mark
20	$y = kx^2$ $y \ \alpha \ kR^2$ 900 scores 4 marks	M1 M1

Q	Answer	Mark	Comments
21	$y = 2 + x$	B1	$x = y - 2$
	$2x^2 + 5x + 1 =$ their $(2 + x)$	M1	oe $y = 2(y - 2)^2 + 5(y - 2) + 1$ $2y^2 - 8y + 8 + 5y - y - 10 + 1 = 0$
	$2x^2 + 4x - 1 = 0$	M1dep	$2y^2 - 4y - 1 = 0$
	$\frac{-4 \pm \sqrt{4^2 - (4 \times 2 \times -1)}}{2 \times 2}$ or $\frac{-4 \pm \sqrt{24}}{4}$	M1	$\frac{--4 \pm \sqrt{(-4)^2 - (4 \times 2 \times -1)}}{2 \times 2}$ or $\frac{4 \pm \sqrt{24}}{4}$
	$x = -2.2(\ldots)$ and $x = 0.2(\ldots)$ or $x = -2.2(\ldots)$ and $y = -0.2(\ldots)$ or $x = 0.2(\ldots)$ and $y = 2.2(\ldots)$	A1	$y = 2.2(\ldots)$ and $y = -0.2(\ldots)$ or $y = 2.2(\ldots)$ and $x = 0.2(\ldots)$ or $y = -0.2(\ldots)$ and $x = -2.2(\ldots)$
	$x = -2.2$ and $y = -0.2$ and $x = 0.2$ and $y = 2.2$	A1	$y = 2.2$ and $x = 0.2$ and $y = -0.2$ and $x = -2.2$

Q	Additional Guidance	Mark
21	**BEWARE, roots of $2x^2 + 5x + 1 = 0$ are – 0.22 and – 2.28** Correctly substituting their values from their quadratic scores M1, e.g. $2x^2 + 5x + 1 = 0$ $\frac{-5 \pm \sqrt{5^2 - (4 \times 2 \times 1)}}{2 \times 2}$ scores M0M0M1A0A0 All four solutions are required to score full marks	

22	$(x - 4)(x + 4)$	B1	
	$(2x + 3)(x - 4)$ or $(2x + a)(x + b)$	M1	where $ab = \pm 12$ or $2b + a = -5$
	$\frac{x + 4}{2x + 3}$	A1	

Q	Answer	Mark	Comments
23	$\frac{4}{9}$ or $\frac{5}{9}$ or $\frac{3}{8}$ or $\frac{5}{8}$ or $\frac{4}{8}$	M1	oe
	$\frac{4}{9} \times \frac{3}{8}$ or $\frac{4}{9} \times \frac{5}{8}$ or $\frac{5}{9} \times \frac{4}{8}$	M1	oe 0.166... or 0.277... or 0.17 or 0.28
	$\frac{4}{9} \times \frac{3}{8} + \frac{4}{9} \times \frac{5}{8} + \frac{5}{9} \times \frac{4}{8}$	M1	$1 - \left(\frac{5}{9} \times \frac{4}{8}\right)$
	$\frac{52}{72}$ or $\frac{13}{18}$	A1	oe 0.72(2..)

Q	Additional Guidance	Mark
23	Accept decimals	

24	$(3n + 5)(n - 1)$ or $3n \times n$	M1	
	$(3n + 5)(n - 1) - 3n \times n$	M1dep	
	$\frac{3n^2 - 3n + 5n - 5 - 3n^2}{3n(n-1)}$ or $\frac{3n^2 + 2n - 5 - 3n^2}{3n(n-1)}$	A1	Denominator used

Q	Additional Guidance	Mark
24	Ignore repetition of right hand side – see script S3	

25(a)	120	B1	

25(b)	240 or 300	B1	Either value