

Mark scheme for 1MA1 Higher themed papers: Change the Subject

GCSE Mathematics (1MA1)

Themed papers – Change the Subject

Compiled from student-friendly mark schemes

Please note that this mark scheme is not the one used by examiners for making scripts. It is intended more as a guide to good practice, indicating where marks are given for correct answers. As such, it doesn't show follow-through marks (marks that are awarded despite errors being made) or special cases.

It should also be noted that for many questions, there may be alternative methods of finding correct solutions that are not shown here – they will be covered in the formal mark scheme.

NOTES ON MARKING PRINCIPLES

Guidance on the use of codes within this mark scheme

M1 – method mark. This mark is generally given for an appropriate method in the context of the question. This mark is given for showing your working and may be awarded even if working is incorrect.

P1 – process mark. This mark is generally given for setting up an appropriate process to find a solution in the context of the question.

A1 – accuracy mark. This mark is generally given for a correct answer following correct working.

B1 – working mark. This mark is usually given when working and the answer cannot easily be separated.

C1 – communication mark. This mark is given for explaining your answer or giving a conclusion in context supported by your working.

Some questions require all working to be shown; in such questions, no marks will be given for an answer with no working (even if it is a correct answer).

Question 1 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$15(t - 2v) = 15t - 30v$	M1	This mark is given for a correct step towards solution
	$wv = 15t - 30v$ $wv + 30v = 15t$ $v(w + 30) = 15t$	M1	This mark is given for a method to rearrange the formula to isolate terms in v
	$v = \frac{15t}{w + 30}$	A1	This mark is given for the correct answer only

Question 2 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$f(m - 1) = 3m + 4$	P1	This mark is given for a method to multiply both sides by $m - 1$
	$fm - 3m = f + 4$ $m(f - 3) = f + 4$	P1	This mark is given for a method to rearrange the formula to isolate terms in m
	$m = \frac{f + 4}{f - 3}$	A1	This mark is given for the correct answer only

Question 3 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$v^2 - u^2 = 2as$	M1	This mark is given for subtracting u^2 from both sides of the equation
	$\frac{v^2 - u^2}{2a} = s$	A1	This mark is given for the correct answer only

Question 4 (Total 1 mark)

Part	Working or answer an examiner might expect to see	Mark	Notes
	For example: All three terms should have been multiplied by 2, not just two of them 5 should also have been multiplied by 2 He should have written $2 \times T = q + 10$	C1	This mark is given for a correct explanation of Spencer's mistake

Question 5 (Total 2 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$y^2 = 2m - k$	M1	This mark is given for a method to square both sides of the equation given
	$k = 2m - y^2$	A1	This mark is given for the correct answer only

Question 6 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$p^2 = a + \frac{t}{2}$	M1	This mark is given for eliminating the square root
	$p^2 - a = \frac{t}{2}$	M1	This mark is given for rearranging
	$t = 2(p^2 - a)$	A1	This mark is given for the correct answer only

Question 7 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$u - 2 = \frac{3t}{4}$	M1	This mark is given for subtracting 2 from both sides of the equation
	$4(u - 2) = 3t$	M1	This mark is given for multiplying both sides of the equation by 4
	$\frac{4(u - 2)}{3} = t$	A1	This mark is given for dividing both sides of the equation by 3 to arrive at a correct answer

Question 8 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$k(t - 3) = \frac{2(t + 3)(t - 3)}{t - 3}$ $k(t - 3) = 2(t + 3)$	M1	This mark is given for multiplying both sides by $t - 3$ as the first step
	$kt - 2t = 6 + 3k$	M1	This mark is given for isolating terms in t
	$(k - 2)t = 6 + 3k$	M1	This mark is given for factorising for t
	$t = \frac{6 + 3k}{k - 2}$	A1	This mark is given for the correct answer only

Question 9 (Total 4 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$(5 + m)f = 4 - 3m$	M1	This mark is given for a method to for multiplying both sides by $5 + m$ as a first step
	$fm + 3m = 4 - 5f$	M1	This mark is given for a method to for correctly moving their m terms to one side and their other terms to the other side
	$(f + 3)m = 4 - 5f$	M1	This mark is given for a method to for factorising
	$m = \frac{4 - 5f}{f + 3}$	A1	This mark is given for a correct answer only

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Performance data:

Q	Taken from			Total Marks available	TOPIC	Spec Ref	AO	% Mean marks	Edexcel mean averages Marks of candidates who achieved grade:										
	Q	Series	Paper						ALL	9	8	7	6	5	4	3	2	1	U
1	14b	June 2017	3H	3	Algebra	A5	1	53	1.58	2.88	2.58	2.11	1.58	1.07	0.64	0.31	-	-	0.15
2	15	June 2019	2H	3	Algebra	A5	1	45	1.35	2.85	2.46	1.84	1.21	0.69	0.34	0.14	-	-	0.06
3	2b	Nov 2018	1H	2	Algebra	A5	1	42	0.84	2	1.88	1.82	1.55	1.28	0.7	0.23	-	-	0.11
4	12	Nov 2019	1H	1	Algebra	A5	3	40	0.4	1	0.86	0.8	0.71	0.51	0.3	0.12	-	-	0.05
5	10	Nov 2019	2H	2	Algebra	A5	1	35	0.69	1.89	1.95	1.63	1.46	0.98	0.36	0.07	-	-	0.01
6	8	Mock Set 3	2H	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	11c	Mock Set 4	1H	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	16	Mock Set 2	1H	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	18	Mock Set 1	3H	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				25					4.86	10.62	9.73	8.2	6.51	4.53	2.34	0.87	-	-	0.38