



Published

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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MARK SCHEME NOTES

The following notes are intended to aid interpretation of mark schemes in general, but individual mark schemes may include marks awarded for specific reasons outside the scope of these notes.

Types of mark

- M** Method marks, awarded for a valid method applied to the problem.
- A** Accuracy mark, awarded for a correct answer or intermediate step correctly obtained. For accuracy marks to be given, the associated Method mark must be earned or implied.
- B** Mark for a correct result or statement independent of Method marks.

When a part of a question has two or more ‘method’ steps, the M marks are in principle independent unless the scheme specifically says otherwise; and similarly where there are several B marks allocated. The notation ‘**dep**’ is used to indicate that a particular M or B mark is dependent on an earlier mark in the scheme.

Abbreviations

awrt	answers which round to
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
nfww	not from wrong working
oe	or equivalent
rot	rounded or truncated
SC	Special Case
soi	seen or implied

Question	Answer	Marks	Part Marks
1(a)	V D D D D D V	1	
1(b)	7 9	1	
1(c)	Odd	1	
1(d)	17	1	C opportunity
1(e)	$[t =] 2n - 1$ oe	2	M1 for $2n$ oe C opportunity
1(f)	49	1	C opportunity
2(a)	<pre> V D D V D D D D D V D D V </pre>	1	
2(b)	13 17	1	
2(c)	$[t =] 4n - 3$ oe	2	M1 for $4n$ oe C opportunity
3(a)	<pre> Z Z D Z Z D D D Z Z D D D D D Z Z D D Z Z D Z Z </pre>	1	
3(b)	12 16	2	B1 for each in correct row C opportunity
3(c)	$[p =] 4n - 4$ oe	2	M1 for $4n$ oe C opportunity
3(d)	25 41	2	B1 for each in correct row

Question	Answer	Marks	Part Marks
3(e)	$[b =] -2$ $[c =] 1$	2	B1 for each C opportunity
3(f)	Substitution leading to 61 and correct diagram or continued sequence	2	B1 for each 25 16 41 20 61
Communication: Seen in three of the following questions (maximum of one difference method)		2	1 for communication seen in one question
1(d)	Continuing sequence at least to 15 or substitution into $2n - 1$		
1(f)	$97 = their(2n - 1)$ oe or trial and improvement – minimum of 2 substitutions for <i>their n</i> or correctly deduced from a continued sequence		
3(b)	Correct diagram for day 5		
3(e)	Substitution and attempt to solve equations simultaneously or difference method - with 4 first differences and 3 second differences		
1(e)	At least 3 differences of 2 seen		
2(c)	At least 3 differences of 4 seen		
3(c)	At least 3 differences of 4 seen		