

1		47	B1	cao
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2	(a)		$3n + 1$	M1 A1	for a method to deduce the $n$ th term, eg. $3n + k$ , where $k$ is an integer or $k$ is omitted or for $n = 3n + 1$ for $3n + 1$ oe (accept $n$ replaced by another letter)
	(b)		No (supported)	C1 C1	for using (their expression in (a)) = 90 or shows that 88 or 91 is in the sequence  for an answer of "No" and a convincing argument eg. pattern number 30 has 91 counters or $(90 - 1) \div 3 (= 29.66\dots)$ or shows that the next term after 88 is 91 Note: no ft from (a)

3	(a)(i)	30	B1	cao	
	(ii)	Explanation	C1	for explanation, eg increase by 7, add 7, states $7n - 5$	
	(b)	65	B1	cao	

4	Shown (supported)	M1	for method to find at least two terms, eg $2 \times 4^2 - 1 (= 31)$ and $40 - 3^2 (= 31)$	1 7 17 31 49 71 97 127 161 199 39 36 31 24 15 4 -9
		M1	for generating at least three correct terms of each sequence	
		A1	for generating at least the terms 1, 7, 17, 31, 49 of the first sequence and at least the terms 39, 36, 31, 24, 15, 4 of the second sequence	

5	21, 28	B2	both correct	May be written alongside the given sequence but if contradiction accept the answer line. If both correct, accept in either order.  May be seen as "+6" next to the sequence
		(B1)	one correct in the correct position or for $15 + 6 (= a)$ or $a + 7 (= b)$ where $a \neq 21$ and $b \neq 28$	

6	$3n - 2$	B2	for $3n - 2$ oe	Accept a different variable, eg. $3x - 2$  $n = 3n - 2$ gets B1 only $n + 3$ gets NO marks
		(B1)	for $3n + k$ where $k \neq -2$ or is absent unambiguously shown)	

7	(a)(i)	20, 15	B1	cao	Working may be seen near the sequence  Working may be seen near the sequence
	(ii)	11	B1	cao	
	(b)	39	B1	cao	