Q1. The nth even number is $2n$.

The next even number after $2n$ is $2n + 2$

(a) Explain why.

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(1)

(b) Write down an expression, in terms of n, for the next even number after $2n + 2$

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(1)

(c) Show algebraically that the sum of any 3 consecutive even numbers is always a multiple of 6

(3)
(Total 5 marks)

M1.

	Working	Answer	Mark	Additional Guidance
(a)		Add on 2	1	**B1** 'even numbers go up in twos' or 'even numbers are 2 apart' oe
(b)		$2n + 4$	1	**B1** $2n + 4$ oe
(c)	$2n + 2n + 2 + 2n + 4 = 6n + 6$ $= 6(n + 1)$		3	**M1** for $2n$ (+) $2n + 2$ (+) '$2n + 4$' or any 3 consecutive even numbers written as expressions; any variable may be used **A1** for "$6n + 6$" **A1** for "$6(n + 1)$" or stating there is a factor of 6 oe SC: **B1** for $n + n + 2 + n + 4$
Total for Question: 5 marks				

E1. There was a mixed response to part (a) with many variations of the correct answer. Part (b) was answered well but some pupils wrote $4n + 2$ instead of $2n + 4$. Very few pupils gained marks on part (c). Candidates did not follow the lead given in the earlier parts of the question. Many gave a purely numerical answer and $n + (n + 2) + (n + 4)$ was frequently seen.