1	$(N+1)^2 = (N^2 + 2N + 1)$ and $(N-1)^2 = (N^2 - 2N + 1)$		3	M1	
	$(N^2 + 2N + 1) - (N^2 - 2N + 1) = 4N$			M1	Must reach 4N correctly
		N = 5x oe Therefore $4N = 20x$		A1	Dep. on M2. A correct conclusion (i.e. 20 "x") following fully correct working
	Alt: $N = 5x$ oe in both A and B			M1	
	$(5x+1)^2 = (25x^2 + 10x + 1)$ and $(5x-1)^2 = (25x^2 - 10x + 1)$			M1	
		$(25x^2 + 10x + 1) - (25x^2 - 10x + 1) = 20x$		A1	Dep. on M2. Subtraction of two correct brackets to reach 20 "x"
	Alt: $A^2 - B^2 = (A + B)(A - B)$				
	A+B=2N and $A-B=2$			M1	
	$A^2 - B^2 = 2 N \times 2 = 4N$			M1	
		N = 5x oe Therefore $4N = 20x$		A1	Dep. on M2. A correct conclusion (i.e. 20 "x") following fully correct working
					Total 3 marks

2	e.g. $n^2 - (n-1)^2$ or $(n+1)^2 - n^2$		3	M1	for setting up a correct algebraic expression (any letter can be used)
	e.g. $n^2 - n^2 + 2n - 1$ or $n^2 + 2n + 1 - n^2$			M1	Correct expansion of brackets and correct signs or a correct result
		e.g. $2n-1$ is always odd		A1	dep on M2 for eg $2n - 1$ or $2n + 1$ or $-(2n + 1)$ oe and a suitable conclusion SCB1 for eg $(2n)^2 - (2n - 1)^2$ or $(2n + 1)^2 - (2n)^2$ oe
					Total 3 marks

3	eg $2n$, $2n + 2$, $2n + 4$ or $2n - 2$, $2n$, $2n + 2$ etc		3	M1	3 consecutive even numbers in algebraic form (any letter can be used)
				M1	, ,
	$eg(2n+4)^2-(2n)^2$			IVII	for squaring the largest and smallest even
	$(=4n^2+8n+8n+16-4n^2 (=16n+16))$				numbers and subtracting
	0r				(no need to expand or simplify for this mark)
	$(2n+2)^2 - (2n-2)^2$				
	$(=4n^{2}+4n+4n+4-(4n^{2}-4n-4n+4)(=16n))$				
	eg 8(2n+2) = 16n+16	Correctly		A1	dep on M2 for use of algebra to show correct
	or	shown			conclusion
	eg 16n + 16 = 8(2n + 2)				
	or				(SCB1 for eg $(p+4)^2 - p^2$)
	$eg\ 16n = 8(2n)$				
	or				(SCB2 for use of
	eg 8n + 8n = 8(n + n)				eg $(p+4)^2 - p^2 = 8p + 16 = 8(p+2)$
	or				If the student shows this and also says "it is true
	16n+16				for all numbers, so it must be true for even
	$eg \frac{16n+16}{2n+2} = 8$				numbers" oe then this would gain M2A1
	Alternative				Total 3 marks
	eg a, b, c are consecutive even numbers where $a < b < c$		3	M1	3 numbers defined as consecutive even numbers
					with one correct equation, writing one term in
	and one of $b = \frac{a+c}{2}$ or $a+c = 2b$ or $c-a = 4$ oe				terms of one or more of the others
	2				or $c-a=4$
	eg a, b, c are consecutive even numbers where $a < b < c$			M1	3 numbers defined as consecutive even numbers
					with three correct equations that involve all
	and all of $b = \frac{a+c}{2}$ and $a+c=2b$ and $c-a=4$ oe				letters in some place
	Now $c^2 - a^2 = (c - a)(c + a) = 4 \times 2b = 8b$	Correctly		A1	dep on M2 for use of algebra to show correct
		shown			conclusion
					Total 3 marks

$ \begin{array}{c} \operatorname{eg} \operatorname{Amn} + 2m + 2n + 1 \\ \operatorname{or} \operatorname{eg} \operatorname{An}^2 + 4n + 1 \\ \operatorname{or} \operatorname{eg} \operatorname{An}^2 + 4n + 1 \\ \operatorname{or} \operatorname{eg} \operatorname{An}^2 + 8n + 3 \\ \operatorname{eg} 2(2mn + m + n) + 1 \text{ therefore odd} \\ \end{array} \begin{array}{c} \operatorname{Proved} \\ \end{array} \begin{array}{c} \operatorname{Im} \int_{\mathbb{R}^n} \operatorname{dep} \operatorname{MI Multiplying} \operatorname{out the two brackets} \\ \operatorname{or} \operatorname{eg} \operatorname{An}^2 + 8n + 3 \\ \operatorname{eg} 2(2mn + m + n) + 1 \text{ therefore odd} \\ \end{array} \begin{array}{c} \operatorname{Proved} \\ \end{array} \begin{array}{c} \operatorname{Im} \int_{\mathbb{R}^n} \operatorname{An} \operatorname{Im} \operatorname{An} \operatorname{Im} \operatorname{An} \operatorname{Im} $	4			4		form 2 <i>n</i> Must ha (M1 for number eg (2 <i>n</i>	n + k where k is odd). ave different letters/variables. If the product of same or different odd we where the variable is the same n + 1(2n - 1) or $(2n + 1)(2n + 3)$
or eg $4n^2-1$ or eg $4n^2+8n+3$ eg $2(2mn+m+n)+1$ therefore odd Proved Proved A1 dep M3 Factorising and a conclusion or stating that the 3 leading terms are all even, hence result is odd. Total 4 mark Total 4 mark Total ($n^2 > n^2$) $(n^2 > n^2)^2$ $((n^2 > n)^2$ $((n^2 > n)^2)^2$ $((n^2 + 1)^2 = 2n^2 + 2n + 4 = n^2 + 4n + 4$ oe or $(n^2 - n)^2$ $((n^2 + 1)^2 = 2n^2 + 2n + 2n + 4 = n^2 + 4n + 4$ oe and $2(n + 1)^2 = 2n^2 + 2n + 2n + 2(n^2 + 4n + 4)$ oe and $2(n + 1)^2 = 2n^2 + 2n + 2n + 2(n^2 + 4n + 4)$ oe and $2(n + 1)^2 = 2n^2 + 2n + 4 = 2n^2 + 4n + 2$ oe or $(n^2 - n)^2$ $(n^2 - 2n^2 + 4n + 4 = 2n^2 + 4n + 2 + 2$ oe or $(n^2 - 2n^2 + 4n + 2)$ oe or $(n^2 - 2n^2 + 4n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2n + 2)$ $(n^2 - 2n^2 + 2n + 2n + 2n + 2n + 2n + 2n + 2n$					M1	dep M1	Multiplying out the two brackets
						with od	d numbers correctly.
$ \begin{array}{ c c c c } \hline & & & & & & & & & & & & & & & & & & $, , , , , , , , , , , , , , , , , , , ,		D 1	_	A 1	1 10	P 4 :: 1 1 :
$ \begin{array}{ c c c c }\hline \\ S \\ \hline \\ Eg, n, n+1, n+2 \\ (n^2)=n^2 \\ ((n+1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ ((n+2)^2)=n^2 + 2n + 2n + 4 = n^2 + 4n + 4 \text{ oe} \\ \text{or} \\ Eg, n-1, n, n+1 \\ ((n-1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ ((n+1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ ((n+1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ ((n+1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ ((n+1)^2)=n^2 + n + n + 1 = n^2 + 2n + 10 \\ \text{or} \\ (n+2)=n^2 + 2n + 2n + 4(=2n^2 + 4n + 4) \text{ oe and} \\ 2(n+1)^2=2n^2 + 2n + 2n + 2(=2n^2 + 4n + 2) \text{ oe} \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2(=2n^2 + 4n + 2) \text{ oe} \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n + 2n + 2n + 2 \\ \text{or} \\ (n+2)=2n^2 + 2n $		eg $2(2mn+m+n)+1$ therefore odd	Proved		AI	or stati	ng that the 3 leading terms are all
and for correctly finding the expansion of at least 2 squares (Allow $2 \times \text{middle number} + 2$) $(n^2 + 2)n^2 + 2n + 2n + 1 = n^2 + 2n + 1 \text{ oe}$ $((n+2)^2) = n^2 + 2n + 2n + 4 = n^2 + 4n + 4 \text{ oe}$ or $Eg n - 1, n, n + 1$ $((n-1)^2) = n^2 - n - n + 1 = n^2 - 2n + 1 \text{ oe}$ $(n^2 + 2)^2 = ((n+1)^2) = n^2 - n - n + 1 = n^2 - 2n + 1 \text{ oe}$ $(n^2 + 2)^2 = ((n+1)^2) = 2n^2 + 2n + 2n + 2(=2n^2 + 4n + 4) \text{ oe and}$ $2(n+1)^2 = 2n^2 + 2n + 2n + 2(=2n^2 + 4n + 2) \text{ oe}$ or $n^2 - 2n + 1 + n^2 + 2n + 1 (= 2n^2 + 2n + 2) \text{ oe}$ $2(n+1)^2 + 2n + 1 + 2n^2 + 2n + 2n + 2n + 2n + 2n + 2n + $						• • • • • • • • • • • • • • • • • • • •	Total 4 marks
and for correctly finding the expansion of at least 2 squares (Allow $2 \times \text{middle number} + 2$) $(n^2 + 2)n^2 + 2n + 2n + 1 = n^2 + 2n + 1 \text{ oe}$ $((n+2)^2) = n^2 + 2n + 2n + 4 = n^2 + 4n + 4 \text{ oe}$ or $Eg n - 1, n, n + 1$ $((n-1)^2) = n^2 - n - n + 1 = n^2 - 2n + 1 \text{ oe}$ $(n^2 + 2)^2 = ((n+1)^2) = n^2 - n - n + 1 = n^2 - 2n + 1 \text{ oe}$ $(n^2 + 2)^2 = ((n+1)^2) = 2n^2 + 2n + 2n + 2(=2n^2 + 4n + 4) \text{ oe and}$ $2(n+1)^2 = 2n^2 + 2n + 2n + 2(=2n^2 + 4n + 2) \text{ oe}$ or $n^2 - 2n + 1 + n^2 + 2n + 1 (= 2n^2 + 2n + 2) \text{ oe}$ $2(n+1)^2 + 2n + 1 + 2n^2 + 2n + 2n + 2n + 2n + 2n + 2n + $							
$n^2 + n^2 + 2n + 2n + 4 + (= 2n^2 + 4n + 4) \text{ oe and}$ $2(n+1)^2 = 2n^2 + 2n + 2n + 2(= 2n^2 + 4n + 2) \text{ oe}$ or $n^2 - 2n + 1 + n^2 + 2n + 1 = (2n^2 + 2) \text{ oe}$ $E.g. 2n^2 + 4n + 4 = 2n^2 + 4n + 2 + 2 \text{ oe}$ or $2(x+1)^3 + 2 = 2(x+1)^2 + 2 \text{ oe}$ or $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 = 2n^2 + 2 \text{ oe}$ $2n^2 + 2 + 2n + 1 + 4n^2 + 2n + 1$ or $2n^2 + 2 + 2n + 1 + 4n^2 - 4n + 1$ or $2n^2 + 2n + 1 + 4n^2 - 4n + 1$ or $2n^2 + 2n + 1 + 4n^2 - 4n + 1$ or $3n^2 + 2$ or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 2$ or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$ oe $8n^2 + 16n + 10$ o	5	$(n^{2} =)n^{2}$ $((n+1)^{2} =)n^{2} + n + n + 1 = n^{2} + 2n + 1 \text{ oe}$ $((n+2)^{2} =)n^{2} + 2n + 2n + 4 = n^{2} + 4n + 4 \text{ oe}$ or E.g. $n - 1, n, n + 1$ $((n-1)^{2} =)n^{2} - n - n + 1 = n^{2} - 2n + 1 \text{ oe}$ $(n^{2} =)n^{2}$			3	and fo	or correctly finding the expansion of at 2 squares
		$((n+1)^2 =)n^2 + n + n + 1 = n^2 + 2n + 1$ oe					
	,	$2(n+1)^2 = 2n^2 + 2n + 2n + 2(= 2n^2 + 4n + 2)$ oe or				and d	ouble the square of the middle
6		$2(x+1)^2 + 2 = 2(x+1)^2 + 2$ oe	Complete p	roof		expres	ssions
6							
or $(2n+1)^2 + (2n+3)^2$ oe expression (any letter can be used) must have intention to add (may come after expanding) Eg $4n^2 + 4n + 1 + 4n^2 - 4n + 1$ or $8n^2 + 2$ or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$ oe eg $8 \times n^2 + 2$ shown clearly A1 conclusion dep on M2 for eg $8n^2 + 2$ and a suitable conclusion (may be shown as a calculation/in numbers). The conclusion must be an intention to show that the result is a multiple of 8 and there is 2 remaining. $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 + \frac{2}{8}$ oe	-	211 +2 - 211 + 200					Total 3 marks
or $(2n+1)^2 + (2n+3)^2$ oe expression (any letter can be used) must have intention to add (may come after expanding) Eg $4n^2 + 4n + 1 + 4n^2 - 4n + 1$ or $8n^2 + 2$ or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$ oe eg $8 \times n^2 + 2$ shown clearly A1 conclusion dep on M2 for eg $8n^2 + 2$ and a suitable conclusion (may be shown as a calculation/in numbers). The conclusion must be an intention to show that the result is a multiple of 8 and there is 2 remaining. $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 + \frac{2}{8}$ oe							
Eg $4n^2 + 4n + 1 + 4n^2 - 4n + 1$ or $8n^2 + 2$ or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$ oe shown clearly A1 conclusion dep on M2 for eg $8n^2 + 16n + 10$ or $8n^2 + 16n + 10 = n^2 + 2n + \frac{10}{8}$ which shows a remainder of 2 or $10 - 8 = 2$ or $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe	6	or $(2n+1)^2 + (2n+3)^2$ oe			3	M1	expression (any letter can be used) must have intention to add (may
or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$ oe shown clearly $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + \frac{10}{8} \text{ which shows a remainder of 2 or } 10 - 8 = 2 \text{ or}$ $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 \text{ remainder 2 oe}$ $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 \text{ remainder 2 oe}$ $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 \text{ remainder 2 oe}$ $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 \text{ remainder 2 oe}$						M1	correct expansion of brackets and
$\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + \frac{10}{8}$ which shows a remainder of 2 or $10 - 8 = 2$ or $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1$ remainder 2 oe $\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 + \frac{2}{8}$ oe		or $4n^2 + 4n + 1 + 4n^2 + 12n + 9$ or $8n^2 + 16n + 10$					correct signs or a correct result.
$\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + 1 + \frac{2}{8} \text{ oe}$		$\frac{8n^2 + 16n + 10}{8} = n^2 + 2n + \frac{10}{8}$ which shows a remainder of 2 or $10 - 8 = 2$ or	shown cle	arly		Al	$8n^2+2$ and a suitable conclusion (may be shown as a calculation/in numbers). The conclusion must be an intention to show that the result is a multiple of 8 and there
		_					Total 3 marks

eg $2n$, $2n + 2$, $2n + 4$ or $2n - 2$, $2n$, $2n + 2$ etc		3	M1	for 3 consecutive even numbers in algebraic form (any letter can be used)
eg $(2n)^2 + (2n+4)^2 (= 4n^2 + 4n^2 + 16n + 16 = 8n^2 + 16n + 16)$ or $2(2n+2)^2 (= 2(4n^2 + 8n + 4) = 8n^2 + 16n + 8)$ or $2(2n+2)^2 + 8 (= 2(4n^2 + 8n + 4) + 8 = 8n^2 + 16n + 16)$			M1	for the sum of the squares of the largest and smallest even numbers and adding or the square of the middle even number multiplied by 2 (no need to expand or simplify for this mark)
eg $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 8$ and $8n^2 + 16n + 16 - (8n^2 + 16n + 8) = 8$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 = 8n^2 + 16n + 8 + 8 = 2(2n+2)^2 + 8$ or $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 = 4n^2 + 4n^2 + 16n + 16 = (2n)^2 + (2n+4)^2$ Working required	Correctly shown		Al	dep on M2 for use of algebra to show correct conclusion $(SCB1 \text{ for eg } (p+4)^2 + p^2 \text{ or } 2(p+2)^2 \text{ or } 2(p+2)^2 + 8)$ $(SCB2 \text{ for use of eg } (p+4)^2 + p^2 = 2p^2 + 8p + 16 \text{ and } 2(p+2)^2 + 8 = 2p^2 + 8p + 16$ If the student shows this and also says "it is true for all numbers, so it must be true for even numbers" oe or defines $p, p+2, p+4$ as even numbers, then this would gain M2A1
1				Total 3 marks
	eg $(2n)^2 + (2n+4)^2 (=4n^2 + 4n^2 + 16n + 16 = 8n^2 + 16n + 16)$ or $2(2n+2)^2 (=2(4n^2 + 8n + 4) = 8n^2 + 16n + 8)$ or $2(2n+2)^2 + 8 (=2(4n^2 + 8n + 4) + 8 = 8n^2 + 16n + 16)$ eg $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 - (8n^2 + 16n + 8) = 8$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 = 8n^2 + 16n + 8 + 8 = 2(2n+2)^2 + 8$ or $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ and $8n^2 + 16n + 16 = 4n^2 + 4n^2 + 16n + 16 = (2n)^2 + (2n+4)^2$	eg $(2n)^2 + (2n+4)^2 (= 4n^2 + 4n^2 + 16n + 16 = 8n^2 + 16n + 16)$ or $2(2n+2)^2 (= 2(4n^2 + 8n + 4) = 8n^2 + 16n + 8)$ or $2(2n+2)^2 + 8 (= 2(4n^2 + 8n + 4) + 8 = 8n^2 + 16n + 16)$ eg $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 8$ and $3n^2 + 16n + 16 - (8n^2 + 16n + 8) = 8$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16$ and $3n^2 + 16n + 16 = 8n^2 + 16n + 16 = (2n)^2 + (2n+4)^2$	eg $(2n)^2 + (2n+4)^2 (= 4n^2 + 4n^2 + 16n + 16 = 8n^2 + 16n + 16)$ or $2(2n+2)^2 (= 2(4n^2 + 8n + 4) = 8n^2 + 16n + 8)$ or $2(2n+2)^2 + 8 (= 2(4n^2 + 8n + 4) + 8 = 8n^2 + 16n + 16)$ eg $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 16$ and $3(2n+2)^2 + 8 = 8n^2 + 16n + 16$	eg $(2n)^2 + (2n+4)^2 (= 4n^2 + 4n^2 + 16n + 16 = 8n^2 + 16n + 16)$ or $2(2n+2)^2 (= 2(4n^2 + 8n + 4) = 8n^2 + 16n + 8)$ or $2(2n+2)^2 + 8 (= 2(4n^2 + 8n + 4) + 8 = 8n^2 + 16n + 16)$ eg $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 + 8 = 8n^2 + 16n + 16$ or $(2n)^2 + (2n+4)^2 = 8n^2 + 16n + 16$ and $2(2n+2)^2 = 8n^2 + 16n + 16$ and $3(2n+2)^2 + 8 = 8n^2 + 16n + 16$