Question Number	Scheme	Marks
5(a)	$\sum_{r=1}^{n}(r+1)(r+5)=\sum_{r=1}^{n}\left(r^2+6r+5\right)$	B1
	$=\sum_{r=1}^{n}r^2+6\sum_{r=1}^{n}r+5n$	
	$=\frac{n}{6}(n+1)(2n+1)+6\frac{n}{2}(n+1)+5n$	M1A1
	$=\frac{n}{6}\left(2n^2+3n+1+18n+18+30\right)$	dM1
	$=\frac{n}{6}\left(2n^2+21n+49\right)=\frac{n}{6}(n+7)(2n+7)$ *	A1 * (5)
(b)	$\sum_{r=n+1}^{2n}=\sum_{r=1}^{2n}-\sum_{r=1}^{n}=\frac{2n}{6}(2n+7)(4n+7)-\frac{n}{6}(n+7)(2n+7)$	M1
	$=\frac{n}{6}(2n+7)\{8n+14-(n+7)\}$	
	$=\frac{7n}{6}(2n+7)(n+1)$	A1 (2)
		[7]

(a)

B1 Brackets multiplied out correctly. Summation signs not needed.

M1 Use at least two correct formulae from $\sum_{r=1}^{n}r$, $\sum_{r=1}^{n}r^2$ and $\sum_{r=1}^{n}1=n$.

A1 Fully correct expression.

dM1 Attempt to remove factor $\frac{n}{6}$ from an expression with common factor n present. (if "$5n$" is just 5 then this mark will not be scored). Must be seen before the given answer is quoted. No need to simplify the remaining quadratic factor.

A1* Obtain the correct 3 term quadratic and factorise. This is a "show that" question, so the 3 TQ must be seen. No errors seen.

(b)

M1 Use $\sum_{r=n+1}^{2n}=\sum_{r=1}^{2n}-\sum_{r=1}^{n}$

A1 Simplify to the correct answer.