Question Number	Scheme	Notes	Marks
2(a)	$\frac{1}{(2n-1)(2n+1)(2n+3)} \equiv \frac{A}{2n-1}+\frac{B}{2n+1}+\frac{C}{2n+3}$ $\Rightarrow A=...,B=...,C=...$ Correct partial fraction attempt to obtain values for A, B and C		M1
	$\frac{1}{8(2n-1)}-\frac{1}{4(2n+1)}+\frac{1}{8(2n+3)}$ or e.g $\frac{1}{16n-8}-\frac{1}{8n+4}+\frac{1}{16n+24}$ or e.g. $\frac{\frac{1}{8}}{(2n-1)}-\frac{\frac{1}{4}}{(2n+1)}+\frac{\frac{1}{8}}{(2n+3)}$ Correct **partial fractions**. (May be seen in (b)) This mark is **not** for the correct values of A, B and C, it is for the correct fractions.		A1
			(2)
(b)	$\frac{1}{8}\sum_{r=1}^{n}\left(\frac{1}{2r-1}-\frac{2}{2r+1}+\frac{1}{2r+3}\right)=$ $\frac{1}{8}\left(\frac{1}{1}-\frac{2}{3}+\cancel{\frac{1}{5}}\right.$ $+\frac{1}{3}\cancel{-\frac{2}{5}}+\cancel{\frac{1}{7}}$ $\cancel{+\frac{1}{5}}\cancel{-\frac{2}{7}}+\cancel{\frac{1}{9}}$ . . $+\cancel{\frac{1}{2n-3}}\cancel{-\frac{2}{2n-1}}+\frac{1}{2n+1}$ $\left.+\cancel{\frac{1}{2n-1}}-\frac{2}{2n+1}+\frac{1}{2n+3}\right)$ Uses the method of differences to find sufficient terms to establish cancelling. E.g. 3 rows at the start and 2 rows at the end or vice versa This may be implied if they extract the correct non-cancelling terms.		M1
	$=\frac{1}{8}\left(1-\frac{1}{3}-\frac{1}{2n+1}+\frac{1}{2n+3}\right)$ or e.g. $=\frac{1}{8}\left(1-\frac{2}{3}+\frac{1}{3}+\frac{1}{2n+1}-\frac{2}{2n+1}+\frac{1}{2n+3}\right)$ Identifies the correct non-cancelling terms. May be unsimplified.		A1
	$=\frac{1}{8}\left(\frac{2(2n+1)(2n+3)-3(2n+3)+3(2n+1)}{3(2n+1)(2n+3)}\right)=...$ Attempts to combine terms into one fraction. There must have been at least one constant term and at least 2 different algebraic terms with at least 3 terms in the numerator when combining the fractions.		dM1

	$= \frac{n(n+2)}{3(2n+1)(2n+3)}$	Cao	A1
			(4)
			Total 6