

Question			Answer	Mark	AO	Guidance
3	(a)	(i)	$\frac{1}{2} \times 0.5 \times \{\sqrt{3} + \sqrt{7} + 2(\sqrt{3.25} + 2 + \sqrt{5.25})\}$ $= 4.14 \text{ (3sf)}$	M1	2.1	Correct formula oe with ≥ 4 y-values correct or omitting the $2 \times$ May see $\frac{1}{2} \times 0.5 \times \{1.732.. + 2.645 ... + 2(1.803 ... + 2 + 2.291 ...)\}$
				A1	1.1	All correct. May see $\sqrt{\frac{13}{4}}$ and $\sqrt{\frac{21}{4}}$ oe
				A1 [3]	1.1	awrt 4.14 Answer only without working scores 0/3
3	(a)	(ii)	$[0.5 \times (\sqrt{3} + \sqrt{3.25} + 2 + \sqrt{5.25}) =] 3.91 \text{ (3sf)}$ $[0.5 \times (\sqrt{3.25} + 2 + \sqrt{5.25} + \sqrt{7}) =] 4.37 \text{ (3sf)}$	B1	1.1	$0.5 \times (1.7321 + 1.8023 + 2 + 2.2913)$ awrt 3.91
				B1	1.1	$0.5 \times (1.8028 + 2 + 2.2913 + 2.6458)$ awrt 4.37
				[2]		Allow B1B1 for these values seen anywhere (e.g. may see lower/upper switched). Must be evaluated.
3	(b)		$\lim_{\delta x \rightarrow 0} \sum_{[x=]0}^2 (\sqrt{x^2 + 3}) \delta x$	M1	1.2	M1 for a partial or incomplete expression, e.g. missing (0,2) $\lim_{\delta x \rightarrow 0} \sum (\sqrt{x^2 + 3}) \delta x$. Allow any expression involving $\lim, \Sigma, \sqrt{x^2 + 3}$ (or y) and δx for this mark.
				A1	2.5	oe (must be in terms of x, not y).
				[2]		