

Question 5 (Total 3 marks)

Part	Working or answer an examiner might expect to see	Mark	Notes
	$\lim_{\delta x \rightarrow 0} \sum_{x=1}^{16} x \delta x = \int_1^{16} \sqrt{x} \, dx$	B1	This mark is given for writing the expression for a sum as an integral. The modulus signs are dropped since x is not negative within the domain of the integral bounds.
	$\left[\frac{2}{3} x^{\frac{3}{2}} \right]_1^{16} = \frac{2}{3} \times 16^{\frac{3}{2}} - \frac{2}{3}$	M1	This mark is given for a method to evaluate the integral
	$= 42$	A1	This mark is given for a correct evaluation of the integral