

Question	Scheme	Marks	AOs
4(a)	$\int_4^{12} (1+2x)^{\frac{1}{2}} dx$	B1	1.2
		(1)	
(b)	$\int (1+2x)^{\frac{1}{2}} dx = k(1+2x)^{\frac{3}{2}} (+c)$	M1	1.1b
	$\int (1+2x)^3 dx = \frac{1}{3}(1+2x)^{\frac{3}{2}} (+c)$	A1	1.1b
	$\int_4^{12} (1+2x)^{\frac{1}{2}} dx = \left[\frac{1}{3}(1+2x)^{\frac{3}{2}} \right]_4^{12} = \frac{1}{3}(125-27) = \frac{98}{3}$	A1	1.1b
		(3)	

(4 marks)

Notes

(a)

B1: States $\int_4^{12} (1+2x)^{\frac{1}{2}} dx$

(b)

M1: Integrates $(1+2x)^{\frac{1}{2}}$ to give $k(1+2x)^{\frac{3}{2}} (+c)$

A1: $\int (1+2x)^{\frac{1}{2}} dx = \frac{1}{3}(1+2x)^{\frac{3}{2}} (+c)$

A1: Fully correct proof with evidence of correct use of both limits