

Question	Scheme	Marks	AOs
4(a)	Sets up identity $4x^3 - 19x^2 + 28x - 4 = (Ax + B)(x - 2)^2 + C$ And finds values of A, B or C	M1	2.1
	For two of $A = 4, B = -3, C = 8$	A1	1.1b
	For all three of $A = 4, B = -3, C = 8$	A1	1.1b
		(3)	
(b)	$\int h(x) \, dx = \int 4x - 3 + \frac{8}{(x - 2)^2} \, dx$		
	$= 2x^2 - 3x - \frac{8}{x - 2} + c$	M1 M1 A1ft	1.1b 1.1b 1.1b
		(3)	

(6 marks)

Notes:

(a)

M1: For showing clear calculations and algebraic reasoning leading to values of A, B or C .

E.g. If an identity is used then it must be correct. Sets $4x^3 - 19x^2 + 28x - 4 = (Ax + B)(x - 2)^2 + C$ and finds values of A, B and C are found by substituting or equating terms

E.g. If division is used then $(x - 2)^2 \rightarrow x^2 \pm 4x \pm 4$ and the division must lead to a linear quotient of

$$4x + B \text{ with a remainder that is independent of } x. \quad \begin{array}{r} 4x^2 + \dots \\ 4x^3 - 19x^2 + 28x - 4 \\ \hline x^2 - 4x + 4 \end{array}$$

(Note: This method would not be expected but is an acceptable way to score the marks)

A1: For two of $A = 4, B = -3, C = 8$

A1: For all three of $A = 4, B = -3, C = 8$

(b)

M1: For a correct attempt at integrating either the $Ax + B$ term or the $\frac{C}{(x - 2)^2}$ term

M1: For a correct attempt at integrating both the $Ax + B$ term and the $\frac{C}{(x - 2)^2}$ term

A1ft: $2x^2 - 3x - \frac{8}{x - 2} + c$ but follow through on their non-zero values of A, B and C .