

Q	Marking instructions	AO	Marks	Typical solution
7	Integrates with at least one term correct.	3.1a	M1	$a^2 - x^2 = 0$ $(a + x)(a - x) = 0$ $x = -a \text{ or } a$ $\int_{-a}^a (a^2 - x^2) dx = 36$ $\left[a^2x - \frac{x^3}{3} \right]_{-a}^a = 36$ $a^3 - \frac{a^3}{3} + a^3 - \frac{a^3}{3} = 36$ $\frac{4a^3}{3} = 36$ $a^3 = 27$ $a = 3$
	Obtains correct integral.	1.1b	A1	
	Obtains $x = -a$ or a	1.1b	B1	
	Substitutes their limits into their two-term integrated expression Do not allow any limits involving x	1.1a	M1	
	Equates their expression in terms of a With limits $-a$ to a , to 36 Or With limits 0 to a or $-a$ to 0, to 18	3.1a	M1	
Completes a reasoned argument to obtain $a = 3$	2.1	R1		
Question 7 Total			6	