Question			Answer	Mark	AO	Guidance
5						**DR**
			$x(x^2 - 4) = 0$	**B1**	**3.1a**	Evidence of factorising or otherwise attempting to solve (=0 not required for this mark)
			$x = 0, -2, 2$	**B1**	**1.1**	This mark may be implied by correct limits
			$A_1 = \displaystyle\int_0^2 \left(x^3 - 4x\right)dx$	**M1***	**1.1**	Ignore limits for this mark
			$= \left[\dfrac{x^4}{4} - 2x^2\right]_0^2 = -4$	**A1**	**1.1**	Must be seen for this mark (or clear indication of taking modulus) Condone area from [0,-2] as -4 or from [2,0] as +4 but must be consistent with their limits
			$A_2 = |A_1| = 4$ or $A_2 = -A_1 = 4$	**dM1**	**2.1**	By symmetry: Total area $= 2 \times$ (their A_1) or adding together two areas of the same sign from their two integrals (or just $4 + 4$)
			Total area $= 8$	**A1**	**1.1**	www, Area must be positive
			Alternative method for final M1*A1dM1A1 $\displaystyle\int_{-2}^0 \left(x^3 - 4x\right)dx - \int_0^2 \left(x^3 - 4x\right)dx$	**M1***		Ignore limits for this mark
			$= 4 - (-4)$	**A1**		Correct area of -4 seen
				dM1		Attempt combine the two areas, with correct signs
			$= 8$	**A1**		www, Area must be positive
						NB $\displaystyle\int_{-2}^2 \left(x^3 - 4x\right)dx = 0$ scores B1B1M1A0M0A0 if working seen SC, no working or inadequate working: One area $= 4$: **SCB3** or Total area $= 8$: **SCB4**
				[6]		