Q	Marking Instructions	AO	Marks	Typical Solution
10	The 3 appropriate ${}_nC_r$ seen (ignore any extras) (PI by 55, 165 and 330 OE)	AO3.1a	M1	${}_nC_2 \quad {}_nC_3 \quad {}_nC_4$
	Forms a correct equation, accept $\frac{3}{2}({}_nC_2 + {}_nC_3) = {}_nC_4$ Allow $\binom{n}{r}$ notation (condone x terms in equation)	AO1.1a	M1	$\frac{3}{2}\left(\frac{n!}{(n-2)!\,2!}+\frac{n!}{(n-3)!\,3!}\right) = \frac{n!}{(n-4)!\,4!}$
	Obtains completely correct equation in terms of factorials. Reaching second line of typical solution scores M1 M1 A1	AO1.1b	A1	$\frac{3}{2}\left(\frac{n(n-1)}{2}+\frac{n(n-1)(n-2)}{6}\right) = \frac{n(n-1)(n-2)(n-3)}{24}$ $18+6n-12 = n^2-5n+6$ $0 = n^2-11n = n(n-11)$
	Reduces to a quadratic or solves the quartic (may involve calculator functions)	AO1.1a	M1	$n = 11$
	Chooses the correct solution. (The correct value of n scores 5/5 may be found by trial and error)	AO3.2a	A1	
	Total		**5**	