

Transitive Groups of Degree 15

No.	Group	Order	Dim(CA)	C.A.?	Dim(GA)	Gr.A.?	Cycle_Index
1	C(15)=5[x]3	15	15	T	15	T	$\frac{1}{15}x_1^{15} + \frac{2}{15}x_3^5$ $+ \frac{4}{15}x_5^3 + \frac{8}{15}x_{15}$
2	D(15)	30	8	T	29	F	$\frac{1}{30}x_1^{15} + \frac{1}{2}x_1x_2^7$ $+ \frac{1}{15}x_3^5 + \frac{2}{15}x_5^3$ $+ \frac{4}{15}x_{15}$
3	D(5)[x]3	30	9	T	27	F	$\frac{1}{30}x_1^{15} + \frac{1}{6}x_1^3x_2^6$ $+ \frac{1}{15}x_3^5 + \frac{1}{3}x_3x_6^2$ $+ \frac{2}{15}x_5^3 + \frac{4}{15}x_{15}$
4	5[x]S(3)	30	10	T	25	F	$\frac{1}{30}x_1^{15} + \frac{1}{10}x_1^5$ $x_2^5 + \frac{1}{15}x_3^5 + \frac{2}{15}$ $x_5^3 + \frac{2}{5}x_5x_{10} +$ $\frac{4}{15}x_{15}$
5	A_5(15)	60	6	F	42	F	$\frac{1}{60}x_1^{15} + \frac{1}{4}x_1^3x_2^6$ $+ \frac{1}{3}x_3^5 + \frac{2}{5}x_5^3$
6	F(5)[1/2]S(3)	60	5	T	53	F	$\frac{1}{60}x_1^{15} + \frac{1}{12}x_1^3$ $x_2^6 + \frac{1}{2}x_1x_2x_4^3$ $+ \frac{1}{30}x_3^5 + \frac{1}{6}x_3x_6^2$ $+ \frac{1}{15}x_5^3 + \frac{2}{15}x_{15}$
7	D(5)[x]S(3)	60	6	T	45	F	$\frac{1}{60}x_1^{15} + \frac{1}{20}x_1^5$

							$x_2^5 + \frac{1}{12} x_1^3 x_2^6 + \frac{1}{4} x_1 x_2^7 + \frac{1}{30} x_3^5 + \frac{1}{6} x_3 x_6^2 + \frac{1}{15} x_5^3 + \frac{1}{5} x_5 x_{10} + \frac{2}{15} x_{15}$
8	F(5)[x]3	60	6	T	51	F	$\frac{1}{60} x_1^{15} + \frac{1}{12} x_1^3 x_2^6 + \frac{1}{6} x_1^3 x_4^3 + \frac{1}{30} x_3^5 + \frac{1}{6} x_3 x_6^2 + \frac{1}{15} x_5^3 + \frac{1}{3} x_3 x_{12} + \frac{2}{15} x_{15}$
9	[5^2]3	75	7	T	39	F	$\frac{1}{75} x_1^{15} + \frac{4}{25} x_1^5 x_5^2 + \frac{2}{3} x_3^5 + \frac{4}{25} x_5^3$
10	S_5(15)	120	4	T	67	F	$\frac{1}{120} x_1^{15} + \frac{5}{24} x_1^3 x_2^6 + \frac{1}{4} x_1 x_2 x_4^3 + \frac{1}{6} x_3^5 + \frac{1}{6} x_3 x_6^2 + \frac{1}{5} x_5^3$
11	F(5)[x]S(3)	120	4	T	85	F	$\frac{1}{120} x_1^{15} + \frac{1}{40} x_1^5 x_2^5 + \frac{1}{24} x_1^3 x_2^6 + \frac{1}{8} x_1 x_2^7 + \frac{1}{12} x_1^3 x_4^3 + \frac{1}{4} x_1 x_2 x_4^3 + \frac{1}{60} x_3^5 + \frac{1}{12} x_3 x_6^2 + \frac{1}{30} x_5^3 + \frac{1}{6} x_3$

							$x_{12} + \frac{1}{10} x_5 x_{10}$ $+ \frac{1}{15} x_{15}$
12	$[5^2:2]3$	150	5	T	75	F	$\frac{1}{150} x_1^{15} + \frac{1}{6} x_1^3$ $x_2^6 + \frac{2}{25} x_1^5 x_5^2 +$ $\frac{1}{3} x_3^5 + \frac{1}{3} x_3 x_6^2 +$ $\frac{2}{25} x_5^3$
13	$[5^2]S(3)$	150	6	T	41	F	$\frac{1}{150} x_1^{15} + \frac{1}{10} x_1^5$ $x_2^5 + \frac{2}{25} x_1^5 x_5^2 +$ $\frac{1}{3} x_3^5 + \frac{2}{25} x_5^3 + \frac{2}{5}$ $x_5 x_{10}$
14	$5^2:2[1/2]S(3)$	150	4	T	77	F	$\frac{1}{150} x_1^{15} + \frac{1}{10} x_1$ $x_2^7 + \frac{2}{25} x_1^5 x_5^2 +$ $\frac{1}{3} x_3^5 + \frac{2}{5} x_1 x_2^2$ $x_{10} + \frac{2}{25} x_5^3$
15	$3A_5(15)=$ $[3]A(5)=GL(2,4)$	180	4	T	67	F	$\frac{1}{180} x_1^{15} + \frac{1}{12} x_1^3$ $x_2^6 + \frac{2}{9} x_1^3 x_3^4 +$ $\frac{11}{90} x_3^5 + \frac{1}{6} x_3 x_6^2$ $+ \frac{2}{15} x_5^3 + \frac{4}{15} x_{15}$
16	$A(5)[x]3$	180	6	T	51	F	$\frac{1}{180} x_1^{15} + \frac{1}{9} x_1^6$ $x_3^3 + \frac{1}{12} x_1^3 x_2^6 +$ $\frac{7}{30} x_3^5 + \frac{1}{6} x_3 x_6^2$ $+ \frac{2}{15} x_5^3 + \frac{4}{15} x_{15}$