The column (!) is marked with a (*) if the group is not solvable, and is marked with (□) if it is a subgroup of A_n.

- For degree 3, there are 2 transitive subgroups of S_3, with generators and cycle types as follows:

#	Order	!	Name	Generators	1	2	3
3T1	3	□	A_3	(1 2 3)	1		2
3T2	6		S_3	(1 2 3), (1 2)	1	3	2

- For degree 4, there are 5 transitive subgroups of S_4, with generators and cycle types as follows:

#	Order	!	Name	Generators	1	2	2,2	3	4
4T1	4		C_4	(1 2 3 4)	1		1		2
4T2	4	□	V_4	(1 2)(3 4), (1 3)(2 4)	1		3		
4T3	8		$D_{2\cdot 4}$	(1 2 3 4), (1 3)	1	2	3		2
4T4	12	□	A_4	(1 2 3), (2 3 4)	1		3	8	
4T5	24		S_4	(1 2 3), (1 2)	1	6	3	8	6

- For degree 5, there are 5 transitive subgroups of S_5, with generators and cycle types as follows:

#	Order	!	Name	Generators	1	2	2,2	3	2,3	4	5
5T1	5	□	C_5	(1 2 3 4 5)	1						4
5T2	10	□	$D_{2\cdot 5}$	(1 2 3 4 5), (1 5)(2 4)	1		5				4
5T3	20		F_{20}	(1 2 3 4 5), (1 2 4 3)	1		5			10	4
5T4	60	□*	A_5	(1 2 3), (3 4 5)	1		15	20			24
5T5	120	*	S_5	(1 2 3 4 5), (1 2)	1	10	15	20	20	30	24

- For degree 6, there are 16 transitive subgroups of S_6, with generators and cycle types as follows:

#	Order	!	Name	Generators	1	2	2,2	2,3	2,4	2,2,2	3	3,3	4	5	6
6T1	6		C_6	(1 2 3 4 5 6)	1					1		2			2
6T2	6		S_3	(1 3 5)(2 4 6), (1 4)(2 3)(5 6)	1					3		2			
6T3	12		$S_3 \times C_2$	(1 2 3 4 5 6), (1 4)(2 3)(5 6)	1		3			4		2			2
6T4	12	□	A_4	(1 4)(2 5), (1 3 5)(2 4 6)	1		3					8			
6T5	18		F_{18}	(2 4 6), (1 4)(2 5)(3 6)	1					3	4	4			6
6T6	24		$A_4 \times C_2$	(3 6), (1 3 5)(2 4 6)	1	3	3			1		8			8
6T7	24	□	S_4 (a)	(1 4)(2 5), (1 3 5)(2 4 6), (1 5)(2 4)	1		9		6			8			
6T8	24		S_4 (b)	(1 4)(2 5), (1 3 5)(2 4 6), (1 5)(2 4)(3 6)	1		3			6		8	6		
6T9	36		$S_3 \times S_3$	(2 4 6), (1 5)(2 4), (1 4)(2 5)(3 6)	1		9			6	4	4			12
6T10	36	□	F_{36}	(2 4 6), (1 5)(2 4), (1 4 5 2)(3 6)	1		9		18		4	4			
6T11	48		$S_4 \times C_2$	(3 6), (1 3 5)(2 4 6), (1 5)(2 4)	1	3	9		6	7		8	6		8
6T12	60	□*	A_5	(1 2 3 4 6), (1 4)(5 6)	1		15					20		24	
6T13	72		$F_{36} \rtimes C_2$	(2 4 6), (2 4), (1 4)(2 5)(3 6)	1	6	9	12	18	6	4	4			12
6T14	120	*	S_5	(1 2 3 4 6), (1 2)(3 4)(5 6)	1		15			10		20	30	24	20
6T15	360	□*	A_6	(1 2)(3 4 5 6), (1 2 3)	1		45		90		40	40		144	
6T16	720	*	S_6	(1 2 3 4 5 6), (1 2)	1	15	45	120	90	15	40	40	90	144	120

- For degree 7, there are 7 transitive subgroups of S_7, with generators and some cycle types as follows (for any cycle type not listed, S_7 is the only transitive subgroup containing it):

#	Order	!	Name	Generators	1	2,2	2,4	2,2,2	2,2,3	3	3,3	5	6	7
7T1	7	□	C_7	(1 2 3 4 5 6 7)	1									6
7T2	14		$D_{2\cdot 7}$	(1 2 3 4 5 6 7), (2 7)(3 6)(4 5)	1			6						6
7T3	21	□	F_{21}	(1 2 3 4 5 6 7), (1 2 4)(3 6 5)	1						14			6
7T4	42		F_{42}	(1 2 3 4 5 6 7), (1 3 2 6 4 5)	1			7			14		14	6
7T5	168	□*	$PSL_2(\mathbb{F}_7)$	(1 2 3 4 5 6 7), (1 2)(3 6)	1	21	42				56			48
7T6	2520	□*	A_7	(3 4 5 6 7), (1 2 3)	1	105	630		210	70	280	504		720
7T7	5040	*	S_7	(1 2 3 4 5 6 7), (1 2)	1	105	630	105	210	70	280	504	840	720