HN

$A_{11} \leq A_{12}$	13680000	1a + 133ab + 760a + 3344a + 8910a + 9405a + 16929a + 35112ab + 267520a + 365750a + 406296a + 653125a + 1185030a + 2031480a + 2375000a + 2407680a + 3878280a	19

Character Numbers:[1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 18, 20, 23, 24, 32, 39, 40, 41, 47]

	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8	S_9	S_{10}
χ_1	1	11	2772	2772	16632	20790	30240	30240	83160	9979 2
χ_2	1	11	-1188	-1188	792	4950	$-4320r5$	$4320r5$	3960	475 2
χ_3	1	11	-1188	-1188	792	4950	$4320r5$	$-4320r5$	3960	475 2
χ_4	1	11	792	792	-1188	2970	-6480	-6480	-5940	-7128
χ_5	1	11	72	72	1332	990	1440	1440	6660	7992
χ_6	1	11	492	492	-88	1030	2880	2880	-440	-528
χ_7	1	-1	-168	168	1428	1050	0	0	2100	
χ_8	1	11	372	372	632	310	-1440	-1440	3160	3792
χ_9	1	11	-288	-288	-108	450	$-720r5$	$720r5$	-540	-648
χ_{10}	1	11	-288	-288	-108	450	$720r5$	$-720r5$	-540	-648
χ_{11}	1	11	72	72	-18	-90	360	360	-90	-108
χ_{12}	1	11	-108	-108	72	-90	0	0	360	432
χ_{13}	1	11	72	72	-68	10	-240	-240	-340	-408
χ_{14}	1	-1	-72	72	180	90	0	0	468	-648
χ_{15}	1	-1	72	-72	68	250	0	0	100	-168
χ_{16}	1	-1	12	-12	208	-50	0	0	-400	192
χ_{17}	1	-1	36	-36	-144	-18	0	0	144	0
χ_{18}	1	-1	-48	48	-102	150	0	0	-150	252
χ_{19}	1	-1	-8	8	-12	-150	0	0	100	-88

	S_{11}	S_{12}	S_{13}	S_{14}	S_{15}	S_{16}	S_{17}	S_{18}	S_{19}
χ_1	103950	362880	369600	831600	1247400	1995840	1995840	2494800	3991680
χ_2	24750	17280	52800	−118800	−59400	$95040r5$	$-95040r5$	−118800	190080
χ_3	24750	17280	52800	−118800	−59400	$-95040r5$	$95040r5$	−118800	190080
χ_4	14850	6480	13200	59400	0	−71280	−71280	0	71280
χ_5	4950	2880	−26400	3600	−3600	−12960	−12960	−7200	31680
χ_6	5150	−1920	4800	10800	−6600	7680	7680	−13200	−21120
χ_7	−1050	−10080	0	0	25200	0	0	−25200	10080
χ_8	1550	−1920	4800	−3600	4200	960	960	8400	−21120
χ_9	2250	−720	−1200	−1800	3600	$-2160r5$	$2160r5$	7200	−7920
χ_{10}	2250	−720	−1200	−1800	3600	$2160r5$	$-2160r5$	7200	−7920
χ_{11}	−450	180	600	−1800	1800	−3240	−3240	3600	1980
χ_{12}	−450	0	9 60	2160	−1080	0	0	−2160	0
χ_{13}	50	80	−1200	−600	−800	2160	2160	−1600	880
χ_{14}	−90	1440	0	0	−720	0	0	720	−1440
χ_{15}	−250	−480	0	0	−1200	0	0	1200	480
χ_{16}	50	320	0	0	400	0	0	−400	−320
χ_{17}	18	576	0	0	1008	0	0	−1008	−576
χ_{18}	−150	−180	0	0	0	0	0	0	180
χ_{19}	150	−480	0	0	−400	0	0	400	480

Ramanujan Graphs: [[1, 2], [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19] , [1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 2, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [1, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2], [2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [2, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19], [7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19]]