

## Supplement to Reciprocal Polynomials Having Small Measure. II

By David W. Boyd

Primitive irreducible polynomials with measures satisfying  $1 < M(P) < 1.3$ , listed in increasing order of  $n = \deg(P)$  and  $M(P)$ . The column "out" gives the number of zeros of  $P$  outside the unit circle.

For  $n = 18$  and  $20$ , the list is complete. For  $n = 22, \dots, 32$ , the list consists of all  $P$  which divide a  $Q$  of height 1,  $\deg(Q)$  at most 32, with  $M(Q) < 1.3$ . If  $H(P) > 1$ , the minimal value of  $\deg(Q)$  for a multiple  $Q$  of  $P$  with  $H(Q) = 1$  is given in parentheses after  $\deg(P)$ .

deg	measure	out	first half of polynomial
18	1.1883681475	1	1 1 1 1 0 0-1-1-1-1
18	1.2013961862	2	1 1 1 0 0-1 0-1 0-1
18	1.2194468759	3	1 1 1 0-1-1-1 0 0 1
18	1.2197208590	1	1 1 0 0 0 0 0 0-1-1
18	1.2255034241	2	1 1 0 0 1 0-1 0 0-1
18	1.2313427700	3	1 0 0 0-1 1 0 0 0-1
18	1.2407706350	2	1 0 1 0 1 0 0 1-1 1
18	1.2446170590	3	1 0-1 0 1 0-1 0 0 1
18	1.2527759374	1	1 0 0 0 0 0-1 1-1 1
18	1.2562211544	1	1 1 0 0-1-1 0 0 0 1
18	1.2663343290	3	1 1 0 0 0-1-1 0 0-1
18	1.2787424244	2	1 0 0 0 1 1 0 0 0 1
18	1.2800820372	3	1 1 0-1-1 0 0 0 0 1
18	1.2846165509	1	1 0 0 0-1 0-1 1 0 1
18	1.2857871406	3	1 0-1 0 0 0 0 0 0 1
18(20)	1.2863959668	1	1 2 2 2 2 2 2 3 3 3
18	1.2864786947	2	1 0 1 0 1 1 0 1 0 1
18	1.2878934870	2	1 1 1 0 0 0 0-1-1-1
18(22)	1.2891400449	3	1 1 1 1 1 0-1-1-2-3
18	1.2956753719	1	1 1 0 0-1-1-1 0 1 1
18	1.2957386364	2	1 1 1 0 0-1 0 0 1 1
18	1.2960784475	2	1 0 0 0 1 0 0 1 0 1
18(22)	1.2992431840	3	1 2 2 1 0-1-1-1-2-3

deg	measure	out	first half of polynomial	deg	measure	out	first half of polynomial
20	1.2128241810	2	1 1 0 1 1 0 0 1 1 0 0 1 1 1 1	22	1.2602842369	1	1 1 0 1 1 0 0 0 0 1 1 1 1 1
20	1.2149957008	2	1 1 1 1 1 0 0 1 1 1 1 1 1 1	22	1.2615262661	3	1 1 0 0 1 0 1 0 0 1 1 0 1
20	1.2183963625	2	1 1 0 1 0 0 0 1 0 0 1 0 1 1	22	1.2624609759	3	1 1 0 0 1 1 1 1 1 0 0 1 1
20	1.2269937582	2	1 1 1 1 1 0 0 1 1 0 0 1 0 1	22	1.2640511961	3	1 0 0 0 0 0 0 0 0 1 1 1 1
20	1.2326135486	2	1 1 0 0 0 1 1 0 0 1 0 0 1 1	22	1.2702310087	3	1 0 0 0 0 0 0 0 1 0 0 1 1
20	1.2461081427	2	1 1 1 1 0 0 1 1 1 0 0 1 1 1	22	1.2706160190	3	1 1 0 0 1 0 1 0 1 0 0 1 1
20	1.2468782715	2	1 1 1 1 0 0 0 1 1 0 0 1 1 1	22	1.2724334378	3	1 0 0 1 1 0 0 0 0 0 0 1 1
20	1.2533306502	2	1 0 1 0 1 0 1 0 0 0 0 0 0 0	22	1.2725575872	2	1 1 0 1 0 0 0 0 0 0 1 0 1
20	1.2536355657	2	1 1 1 1 0 0 1 1 1 1 1 1 1 1	22	1.2729357815	2	1 1 1 1 0 0 1 1 1 1 1 1 1
20	1.2547004271	2	1 0 1 0 0 1 0 1 1 0 1 0 1 1	22	1.2733102756	2	1 1 1 1 1 0 0 0 0 1 0 0 1 1
20	1.2562938626	2	1 0 1 0 0 0 1 0 0 0 1 0 1 1	22	1.2758721623	3	1 0 0 0 0 0 1 0 0 0 1 1
20	1.2598494325	2	1 0 0 1 0 0 0 0 0 0 1 0 1 1	22	1.2762842964	3	1 0 0 0 0 0 1 0 0 1 0 1 1
20	1.2613609976	2	1 0 0 1 0 1 1 0 0 0 1 0 1 1	22	1.2767796740	1	1 1 1 1 0 0 0 0 0 0 1 0 1
20	1.2625097625	2	1 0 1 1 1 1 1 0 0 0 0 0 1 1	22	1.2773801436	2	1 1 1 1 1 0 0 0 0 0 0 0 1 1
20	1.2625647407	4	1 2 2 1 1 3 3 2 0 2 3	22	1.2775721230	2	1 0 1 1 1 1 1 1 0 1 2 2
20	1.2639458594	3	1 0 0 1 0 0 0 1 0 0 1 0 1 1	22	1.2802674543	3	1 0 1 1 1 0 1 0 1 0 1 1 1
20	1.2687376481	2	1 0 0 1 0 0 0 1 0 0 1 0 1 1	22	1.2833264115	3	1 0 0 0 1 0 1 0 0 0 1 1 1
20	1.2693314288	2	1 2 2 1 0 1 1 1 1 1 1 1 1 1	22	1.2834104904	3	1 0 0 0 0 1 0 0 0 0 1 1 1
20	1.2718416554	2	1 1 1 0 1 0 1 1 1 0 1 0 1 1	22	1.2839262813	4	1 0 0 1 0 0 0 0 0 0 0 1 0
20	1.2746127983	2	1 1 1 0 0 0 0 0 0 1 1 0 1 1	22	1.2839600697	3	1 0 0 1 0 0 0 1 0 0 0 1 1
20	1.2803862216	2	1 1 0 1 0 0 0 0 1 0 1 0 1 0	22	1.2840662834	3	1 0 0 1 0 0 1 1 0 1 1 1 1
20	1.2824955606	1	1 2 2 2 2 1 0 1 0 1 1 1 1 1	22	1.2848252547	3	1 0 0 1 0 1 0 0 1 0 0 1 1
20	1.2844873122	3	1 0 0 0 0 0 0 0 0 1 0 1 1 1	22	1.2848974915	4	1 1 0 0 1 0 1 0 0 0 1 1 1
20	1.2845413072	2	1 1 1 1 1 2 2 2 2 1 1	22	1.2854655693	4	1 1 0 1 0 0 0 0 0 1 0 1 1
20	1.2878813364	2	1 0 1 0 0 1 0 1 0 1 0 1 1 1	22	1.2867354776	3	1 0 0 0 0 0 0 0 0 0 0 1 1
20	1.2878845681	2	1 1 0 0 1 1 0 1 0 1 0 1 1 1	22	1.2890432708	3	1 0 0 0 1 0 1 0 0 0 0 1 1
20	1.2883596645	4	1 1 0 1 1 1 1 1 0 1 0 2 3	22	1.2891530797	5	1 0 0 0 1 1 0 0 1 0 0 1 1
20	1.2892897355	2	1 0 1 1 0 0 1 0 0 1 0 0 1 1	22	1.2893974538	3	1 0 0 0 1 1 0 0 0 0 0 1 1
20	1.2894625231	2	1 1 0 1 0 1 0 1 0 1 1 1 1 1	22	1.2927231287	2	1 1 0 0 0 0 0 0 0 0 1 1 1
20	1.2920391060	1	1 0 1 0 0 1 0 0 1 0 1 1 1 1	22	1.2929181856	3	1 0 0 0 1 0 0 0 0 0 1 1 1
20	1.2925033343	4	1 0 0 1 0 1 0 1 0 1 1 1 1 1	22	1.2939553340	3	1 2 2 2 1 0 1 2 3 3 3 3
20	1.2939937404	4	1 1 0 1 1 0 1 0 1 0 1 0 1 1	22	1.2964213652	1	1 0 0 1 0 0 0 0 0 0 1 0 1
20	1.2967542368	4	1 0 0 0 0 0 1 0 1 0 0 1 1	22	1.296928140	4	1 1 1 1 0 0 0 1 1 1 1 1 1
20	1.2975848160	3	1 0 0 0 0 0 1 1 0 1 0 1 1	22	1.2993130077	2	1 0 1 0 1 0 0 1 0 0 1 0 0 0
20	1.2982728243	4	1 1 0 0 0 0 1 1 0 0 0 1 1	24	1.2188551503	2	1 0 0 0 0 1 0 1 0 0 0 0 0 1
22	1.2050198542	2	1 0 1 0 0 1 1 1 1 0 0 1 1 1	24	1.2190575078	2	1 1 0 0 1 1 1 1 0 1 1 1 1 1
22	1.2295664566	3	1 1 0 1 1 0 1 1 1 1 0 1 1 1 1	24	1.2344438349	2	1 0 0 0 1 0 1 1 0 0 1 1 1 1
22	1.2356645804	1	1 0 1 0 0 0 1 0 1 0 1 0 1 1	24	1.2537437612	2	1 1 1 1 1 0 0 0 1 1 1 1 1 1
22	1.2448024455	2	1 0 0 1 0 0 0 0 0 0 0 0 1 1	24	1.2541043056	2	1 0 1 1 0 0 0 1 1 0 0 1 1
22	1.2451811383	3	1 1 0 1 0 0 1 0 1 0 1 1 1 1	24	1.2544917819	2	1 0 1 0 1 0 0 1 0 0 0 0 1 1
22	1.2456023171	2	1 1 1 0 1 1 1 1 1 1 0 1 1 1	24	1.2562017318	2	1 1 1 0 0 0 0 0 0 1 1 1 1
22	1.2486111657	3	1 0 0 0 0 1 1 1 1 0 0 0 1 1	24	1.2576061050	4	1 1 0 1 1 0 1 0 0 0 0 1 1 1
22	1.2504618711	3	1 0 1 0 0 0 1 1 0 0 0 1 0 1	24	1.2601035404	1	1 0 0 1 0 1 0 1 1 0 1 0 1 1
22	1.2527210201	2	1 0 0 1 0 0 0 0 1 0 0 1 0 1	24	1.2615525523	4	1 0 1 1 0 2 0 1 1 0 1 0 1 1
22	1.2541425192	3	1 0 1 0 0 0 0 0 0 0 1 0 1 1	24	1.2616232394	2	1 1 1 1 0 0 1 1 1 1 1 0 0 1
22	1.2572590685	2	1 1 1 0 1 2 2 1 0 1 1 1 1 1	24	1.2648330803	2	1 0 1 0 0 1 0 1 0 0 1 0 1 1
22	1.2594336088	3	1 0 1 0 1 0 0 0 0 0 0 0 1 1	24	1.2665387000	2	1 1 0 0 1 1 0 1 1 0 1 1 0 1 1
22	1.2602839589	3	1 0 0 1 1 0 0 0 1 0 0 0 1 1				

deg	measure	out	first half of polynomial	deg	measure	out	first half of polynomial
24	1.2706081908	2	1 1 1 0-1-1 0 1 1 0-1-1-1	26	1.2683338900	3	1 1 0 0 0 1 0 0 0 0 0 0 1 1
24	1.2730948453	4	1 1 1 1 0 0 0-1-1 0 0 0-1	26	1.2717482848	2	1 1 0 0 0 1 0 0 0 0 0 0 0 1
24	1.2732523343	4	1 1 1 1 1 0-1-1-1-1-1-1-1	26	1.2720192693	2	1 1 0 0 1 0 1 0 0 0 0-1 0-1
24	1.2737978105	2	1 1 0 0 1 1 0-1 0 0 0-1-1	26	1.2725612594	3	1 0 0 0 0 1 0 1 0 0 0 0-1
24	1.2740169856	4	1 1 0 0 0-1-1 0 0 0 1-0-1	26	1.2751625943	3	1 0 0 0 0 1 0 0-1 0 0 0-1
24	1.2759630944	2	1 0-1 0-1 0-1 0-1 1 0-1 0-1	26	1.2752082234	5	1 0 0 0 0 0-1 0 0 0 0 0 1
24	1.2771687084	2	1 0 0 0-1 0-1 0-1 1 0-1 0-1	26 (28)	1.2773434679	3	1 1 2 2 2 2 1 0 0-1-1-1-1
24	1.2775159765	3	1 1 1 0 0 0 0 0 0 1 0 0-1	26	1.2784596673	4	1 0 0 1 1 1 0 1 1 1 0 1 1
24	1.2778804566	2	1 1 0 0 1 0 1 0 1 1 0 1	26	1.2798328601	5	1 1 0 0 0 0 0 0 0 0 1 0-1
24	1.2780633990	2	1 1 0-1 0-1 0 1 0 1 1-1-1	26	1.2799571713	3	1 1 0 0-1 0 0 0 1 0 0 0-1
24 (28)	1.2794159861	4	1 1 1 0-1-1 0 1 0 1 1-1-1	26	1.2816272456	3	1 1 0 0-1 0 0 0 0 0 0 0 1
24	1.2811657767	2	1 1 0 0 0-1-1 0 0 1 0 1 1	26	1.2816913715	1	1 0 0 0 0-1 1-1-1-1-1-1
24	1.2818242953	2	1 1 0 0 0-1 0 1 0 1 0-1-1	26	1.2842247081	4	1 1 0 1-2 0 0 0 0 0 0 0-1
24	1.2822284083	4	1 1 0 0 1 1 0 1 0 0 0-1-1	26 (28)	1.2847468215	1	1 2 1-1-2 0 0 0 0-1 0 1 1
24	1.2836682860	4	1 1 0-1 1-1 0 1 0-1 0 0-1	26	1.2851232632	3	1 0 0 1 0 0 0 0 0 0-1 0 0-1
24	1.2840290479	4	1 1 1 0-1 0 1 0 1 0 0-1 0	26	1.2851967268	4	1 1 0-1 0 0 0-1 0 1-1 0 1-1
24	1.2840784661	2	1 1 0 1 0 1 0-1 0 1 0-1-1	26	1.2862535929	1	1 1 1 1 0 0 0 0 0 0 0 0 1-1
24	1.2840982952	3	1 0 0 0 1 0 1 0 0 0 0 1	26	1.2863084367	5	1 1 1 1 0 1 0 0-1-1-1-1-1
24	1.2868840709	2	1 0 1 1 0 1 0 0 0-1-1-1-1	26	1.2863644737	3	1 1 1 0 0 0-1-1 0 0 0-1
24	1.2885074026	4	1 1 0-1 0 1 0 1 0-1 0 1 0 1	26	1.2867301820	1	1 1 0 0-1-1 0 1 1 1 0-1-1
24	1.2891795897	2	1 0 0 0 1 0 0 1 0 1 0 1 0	26	1.2871576011	4	1 1 0 0 0-1 0 1 1 1 0 0-1
24	1.2900661526	2	1 0 0 0 0 0 1 0 0 0 0-1 0	26	1.2877554606	3	1 1 0 0 0 0-1 0-1 0 0 0 1 1
24 (26)	1.2908211291	3	1 1 2 2 2 1 1 0 0-1-1-1	26	1.2884600087	3	1 1 0 0-1 0 0 1 0 0 0-1-1
24 (28)	1.2912404542	2	1 1 0 1 1 1 1 1 2 3 2 1	26	1.2900515213	3	1 0 0 1 0 0 1 0 0-1 0 0-1
24 (28)	1.2914248011	2	1 1 0-1 0 2 1-2-2 1 2-1-3	26	1.2900831905	2	1 0 1 1 1 1 1 1 1 1 0 1 1
24	1.2917414257	1	1 1 0 0 0 0-1 0 0 0 0 0 0	26	1.2903638180	4	1 0 1 1 0 1 0 0 1-1 1 0 0 1
24	1.2922590564	2	1 0-1 1 0-1 0 0 0-1 1 1-1	26 (28)	1.2903638180	4	1 0 0 1 0-1 0 1-1-1 0-2
24	1.2924488621	2	1 1 0 0 0 1 1 1 1 0-1-1	26	1.2916316172	4	1 1 0 0 0 0 0 0 1 0 0 0-1
24 (28)	1.2929840944	6	1 1 1 0-1-2-2-1 1 2 3	26	1.2935514831	3	1 1 0-1 0 0-1 0 1 0 0 0 1
24	1.2936021509	4	1 0 1 0 1 0 1 0 0 1-1-1	26	1.2947932596	5	1 0 0 0 0 0 0 0 1 0 0 0 1
24	1.2955879036	4	1 1 0 0 0 0 0 1 0-1-1-1	26	1.2955404954	4	1 0 0 0 0 0 0 0 1 0 0 0 1
24	1.2968658647	2	1 1 0 0 1 0-1 0 0 0 0-1	26	1.2958712896	4	1 1 0 0 0-1 0 1 1 1 0-1-1
24 (28)	1.2995650950	2	1 1 1 2 1 1 0 0-1-1-1-1-1	26	1.2964033820	5	1 0-1 0 0 0 0 0 0 1 0-1 0 1
26	1.2237774549	3	1 1 1 0 0-1-1-1 0 0 1 0 1 1	26	1.2965367205	3	1 0 0 1 0 0 0 0 0 0 0 0 1
26	1.2260928945	2	1 0 1 0 0 0 0 0 0 1 0 0 1 0	26	1.2969986036	5	1 1 1 1 1 0-1-1-1-1-1-1-1
26	1.2345003368	3	1 0-1 0-1 0-1 0-1 0-1 0 1 1	26	1.2972668411	3	1 1 0 0 0-1 0 1 0-1 0 1 1
26	1.2375048212	1	1 0-1 0 1 0 0-1 0 1 0 1 0-1	26	1.2972736822	4	1 1 1 1 1 0 0 0-1 0 1 0 0-1
26	1.2402541787	2	1 1 0-1 0 0 0-1 0 1 0 1 0-1	26	1.2973156238	2	1 0 0 0 0-1 0 1 1 0 0 1 0 0
26 (28)	1.2463932024	3	1 2 3 3 2 1 0-1-1-1-1-1-1	26	1.2974173062	2	1 0 0 0 1 0 1 0 0 1 0 1 0 1
26	1.2476087026	2	1 1 1 1 0 0 0 0 1 0 1 0 1 1	26 (30)	1.2974268698	5	1 1-1 0 2 0-2 1 2-2 2 0-3
26	1.2488187537	3	1 1 0 1 0 0 0 0 0-1-1-1-1	26	1.2978512265	5	1 0 1 0 0 0-1 0-1 0 0 1 1 1
26	1.2494993332	3	1 1 0 0 0 0 0 0 0 0 0-1-1	26	1.2985866323	5	1 0 1 0 1 0 1 0 0 1-1-1-1
26	1.2573832167	3	1 0 0 0 0-1 0 0 0 0 0 0 1	28	1.2079500284	2	1 1 1 0 0 0-1-1-1-1-1 0 0 1
26	1.2607650282	2	1 1 1 0 0-1 0 0 1 1 0 0-1-1	28 (30)	1.2326287759	2	1 2 2 1 1 0 0-1-1-1-1-1-1-1
26	1.2613475293	2	1 1 0 0 0-1 0 0 0 0 0 0-1	28	1.2368083059	2	1 1 0-1 0 0 0 0-1 0 0 0 0 1
26	1.2630381399	1	1 1 0 0 0 0 1 0 0 0 0 0 0-1	28 (30)	1.2406996376	2	1 2 3 3 2 1 0 0-1-1-1-1-2-3-3
26 (28)	1.2641611724	2	1 2 3 4 3 3 2 1 0-1-1-1-1-1	28	1.2438788017	2	1 1 1 1 1 1 1 0 0 0-1-1-1-1-1-1
26	1.2652306705	3	1 1 0-1-1 0 0-1-1 0 1 1 0-1				

deg	measure	out	first half of polynomial	deg	measure	out	first half of polynomial
28	1.2449016800	2	1 1 1 1 0 0 -1 -1 -1 -1 0 0 1 1 1	28	1.2983636724	3	1 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0
28	1.2456135530	3	1 1 0 1 0 1 -1 -1 -1 0 0 0 1 0 1	28	1.2983849570	3	1 1 1 0 0 0 0 0 0 0 0 0 1 -1 0 1
28(30)	1.2493521483	3	1 1 1 0 -1 -2 -2 -2 1 0 1 1 1 1 1	28	1.2985322947	4	1 1 0 0 0 0 1 0 0 0 0 0 1 0 0 1
28	1.2519500208	2	1 0 0 0 0 0 1 0 0 0 0 1 0 0 1 -1	28	1.2996044922	2	1 1 0 0 0 0 1 0 0 1 0 0 0 0 0 1
28	1.2535166366	4	1 0 0 -1 -1 0 -1 0 0 0 1 0 0 1 0				
28	1.2542255401	4	1 1 0 -1 0 0 -1 -1 0 1 1 0 1 0 0 1				
28(32)	1.2544575472	4	1 1 1 1 0 0 -1 -2 -1 -1 0 0 0 1 1	30	1.2256198520	2	1 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 1
28	1.2547740861	4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2258105324	3	1 0 1 0 0 0 -1 -1 -1 0 0 0 1 0 1
28	1.2564403009	4	1 1 0 -1 0 1 1 0 -1 -1 0 1 1 1 1	30	1.2281407727	3	1 1 1 0 0 0 -1 -1 -1 0 0 0 1 0 0 1
28(30)	1.2578791747	4	1 1 0 -1 0 -2 1 1 -1 -1 0 1 0 1 1	30	1.2431287049	3	1 1 1 1 0 -1 -1 -1 -1 0 0 0 0 0 1
28	1.2579819434	4	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2475747550	3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2580418373	3	1 1 0 -1 0 0 0 0 0 0 1 0 0 0 1 -1	30(32)	1.2520014487	3	1 1 2 2 0 0 0 0 0 0 0 0 0 0 0 1 1
28	1.2607745066	4	1 1 0 0 0 -1 0 0 0 0 1 0 0 1 0 0	30	1.2521542045	2	1 0 1 2 1 0 -1 -1 -1 -1 0 0 0 0 0 0
28	1.2623759979	4	1 1 0 -1 0 1 0 0 0 0 0 0 0 0 0 1	30	1.2556381293	3	1 0 1 0 0 1 0 -1 0 0 0 0 0 0 0 0
28	1.2634607944	4	1 1 1 0 0 0 1 1 0 -1 -1 0 1 1 1	30	1.2568154876	5	1 0 -1 1 1 1 0 1 0 1 0 1 0 1 0 1
28	1.2651902657	3	1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1	30	1.2595454568	3	1 0 0 0 0 1 0 -1 1 0 0 0 0 1 0 1
28	1.2671974504	2	1 0 0 0 0 0 1 0 0 0 0 0 0 0 1 -1	30	1.2596193571	3	1 0 -1 -1 -1 0 1 0 1 1 1 0 0 0 1 0 1
28	1.2689652561	4	1 1 0 0 0 0 -1 0 0 0 0 0 0 0 1 -1	30	1.2602186974	4	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2691178375	3	1 1 0 0 0 0 0 0 0 0 0 0 0 0 1 1	30	1.2609520573	3	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1
28(32)	1.2696252671	4	1 0 -1 0 1 0 0 -1 2 -1 2 0 1 1 1	30	1.2629369824	3	1 0 0 0 -1 0 0 0 0 0 0 0 0 0 0 1
28(30)	1.2701494625	2	1 1 0 0 -1 -2 1 0 1 1 0 0 0 0 1 -1	30	1.2645802844	4	1 1 1 0 0 -1 -1 0 0 0 0 0 0 1 1 1
28	1.2705569065	4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1	30	1.2673877247	2	1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 1 1
28	1.2739646706	4	1 0 0 0 0 -1 -1 1 0 0 0 0 0 1 -1	30	1.2678134589	3	1 0 0 1 0 0 0 -1 0 0 0 0 0 0 0 1
28(32)	1.2758513729	4	1 1 1 1 1 1 0 0 0 -1 -1 -2 -2 1	30	1.2683351442	3	1 1 0 -1 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2762689066	4	1 1 0 -1 0 1 1 0 0 -1 0 1 0 1 1 1	30	1.2703386614	3	1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2778185617	3	1 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1	30	1.2704761441	3	1 1 0 0 0 1 0 0 0 0 0 0 0 0 0 1
28	1.2795469434	3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0	30	1.2740106457	4	1 1 0 0 0 1 0 1 0 0 0 0 0 0 0 1
28	1.2797151214	2	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1	30	1.2744876338	4	1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2797411435	3	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1	30	1.2749984710	3	1 1 0 0 0 0 1 0 0 0 0 0 0 0 0 1
28	1.2810778349	4	1 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1	30	1.2753246794	4	1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 1
28(32)	1.2814946706	4	1 1 0 1 0 1 0 1 1 2 1 2 1 2 1 1	30	1.2757363624	2	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2828172307	4	1 1 0 -1 0 1 0 0 -1 0 0 0 0 0 0 1	30	1.2764969759	3	1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2830425260	4	1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 1	30	1.2767897384	3	1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2848997664	2	1 1 1 0 0 0 0 0 0 0 0 0 0 0 1 -1	30	1.2773245488	3	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2854230179	4	1 1 0 1 1 1 0 -1 -1 -1 -1 -1 -1	30	1.2773245488	3	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2854230179	4	1 1 0 1 1 1 0 -1 -1 -1 -1 -1 -1	30	1.2784201978	5	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2866660918	3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2790428084	3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2868660958	4	1 1 0 -1 0 1 0 1 0 0 0 0 0 0 0 1	30	1.2798664476	3	1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2881429308	4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2806276624	3	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28(32)	1.2892002616	3	1 1 1 1 1 1 1 1 1 1 1 1 2 1 1 1	30	1.2809104202	4	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2892577566	4	1 1 0 0 1 0 -1 0 0 0 0 0 0 0 0 1	30	1.2809505878	3	1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1
28	1.2901803725	4	1 1 0 0 1 0 -1 0 0 0 0 0 0 0 0 1	30	1.2838255880	5	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2923370153	2	1 1 0 -1 0 1 0 0 0 0 0 0 0 0 0 1	30	1.2842630993	3	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1
28	1.2923923469	2	1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 1	30(32)	1.2850993637	1	1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 1
28(32)	1.2933607472	4	1 1 2 1 0 0 0 -1 -1 -1 0 0 0 0 1	30	1.2851215202	1	1 2 2 2 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2944485550	5	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2851856708	1	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2956768438	4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	30	1.2852133895	4	1 0 0 1 0 0 1 0 0 0 0 0 0 0 0 1
28(32)	1.2964532268	3	1 0 1 0 1 1 1 1 2 1 2 1 2 1 1	30	1.2852354362	3	1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2968213737	1	1 0 0 0 -1 -1 -1 -1 0 0 0 0 0 1 -1	30	1.2863949107	3	1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 1
28	1.2968279352	3	1 0 0 1 0 0 1 0 -1 1 0 0 0 0 0 1	30	1.2872595351	5	1 1 0 -1 0 0 1 0 0 0 0 0 0 0 0 1

deg	measure	out	first half of polynomial	deg	measure	out	first half of polynomial
30 (32)	1.2881625071	4	1 1 1 0-1-2-2-1 1 2 2 1 0-1-1-1	32	1.2901073302	5	1 0 0 0 1 0 0 0 0 0 0 0 0 0-1
30	1.2887478160	4	1 1 1 0 0 0 1 0-1 0-1 0-1 0-1	32	1.2908364877	4	1 0 0 0 1 0 0 0 0 0 0 0 0 0 1
30	1.2897059713	3	1 1 0 0 0 1 0-1-1-1 0-1 0-1	32	1.2909041106	2	1 0 0 1-1 0 0 0 0 0 0-1 0 0-1
30	1.2902320814	2	1 0 0 1 0 0 1 0 1 0 1 0 1 0	32	1.2909689409	4	1 0-1 0 1 0-1 0 0 0 1 1-1 1 0-1
30	1.2903734300	4	1 0 1 0 1 0 1 0 0 1-1 1-1 1	32	1.2913786950	5	1 0 0 0 0 0 0 0 0 0 0 0 0 0-1
30	1.2904343685	4	1 0 1 1 1 1 1 0 1 0 0 0-1 0	32	1.2919273302	4	1 1 0-1-1 0 0 0 0 1 0 0-1 0 0 1
30 (32)	1.2909323738	4	1 1 1 0 0 0 1 1 0 0-1-2-1 0 1	32	1.2925253636	6	1 1 0 0 0-1 0 0 0 1 1 0 0 0-1
30	1.2920181209	2	1 1 0 0 0 1 1 0 0 1 0-1 0 1	32	1.2925554226	2	1 0 1 0 0-1 0 1 1 0 0 0 0 0 0-1
30	1.2925767275	3	1 0 1 1 0 0 0 0 1 0 1 0 1 0 1	32 (34)	1.2932827311	4	1 2 2 1 0-1 0 1 1 0-1-1-1-1-1
30	1.2935518713	5	1 0-1 0 0 0 0 0 1 0 0 0-1 0 1	32	1.2941175426	4	1 1 1 0 0 0-1-1-1 0 0 0 1 1 1
30	1.2938273584	3	1 0-1 0 1 0-1 0 0 1 0-1 0 0 1	32	1.2945555641	4	1 1 1 0-1-1-1-1 0 0 0 0 0 0 1
30	1.2939588178	3	1 0-1 0 0 0 0 0 0 0 0 0 0 0 1	32	1.2951263008	4	1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1
30	1.2944908579	2	1 1 1 0 0 0 0-1 0 0 0 0 0 0-1	32	1.2952521799	5	1 1 0-1 0 1 0-1 0 1 1-1 0 1 0-1
30	1.2946711297	5	1 0 0 0 0 0 0 0 0 0 0 0 0-1 1	32	1.2959059649	6	1 0-1 0 1 0 1 0-1-1 0 1 0-1
30	1.2950594941	3	1 0-1 0 1 0-1 0 0 0 0 1 0-1 0 1	32	1.295278955	2	1 0 0 1 0 0 0 0 0 0-1 0 0 0-1
32	1.2361984699	3	1 0 0 0 0 0 1 0 1 0 0 0 0 0 0 1	32	1.2966446765	3	1 0 1 0 1 0 1 0 1 1 1 1 0 1
32 (46)	1.2362279222	4	1 2 2 1 0-1-1-1-1-1-1 0-1 0 2 3	32	1.2968199694	5	1 0 0 0 0 0 0 0 1 0 0 0 0 0-1
32	1.2429401152	2	1 1 0 0 0 0 0 0 0 0 0 0 0-1 1	32	1.2973766161	6	1 0-1 0 1 0 1 0-1 0 1 1 0 1 0-1
32	1.2536254448	4	1 0 0 0 1 0 0 0 1 0-1 0 0-1 1	32	1.2975103624	4	1 0 1 0 0 0 0 0 0 0 1 0 0 0-1
32	1.2537207394	4	1 0 0 1 0 0 0 0 0 0 0-1 0 0-1	32	1.2989961243	5	1 1 1 1 1 0 0 0-1-1-1-1-1-1
32	1.2571861149	4	1 0 0 0-1-1-1 0 0 1 1 1 0-1 1	32	1.2986050937	4	1 0 1 0 0 0 0 1 0 1 1 0 1 0 1
32	1.2590736766	2	1 0 0 1 0 0 1 0 0 0 0-1 0-1 1	32	1.2997713008	4	1 1 0-1-1 0 0 0 0 0 0 1 1 0-1-1
32	1.2623172504	4	1 1 0-1 0 0 0-1-1 0 0 0 0 1 1 1				
32	1.2629573741	5	1 1 0 0 1 0 0 0 0-1 0 0 0 1 1 1				
32	1.2648046660	2	1 1 0 0 0-1 0 0 0 0-1 0 0-1 0 1				
32	1.2662355140	4	1 1 1 1 1 1 1 0-1-1-1-1-1-1 1				
32	1.2682776790	3	1 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1				
32	1.2707583814	4	1 1 0 0 1 1 0-1 0-1 0-1 0 0 0-1				
32	1.2708393371	4	1 1 0 0 0 0-1-1-1 0 0 0 0 0 1 1				
32	1.2725550649	4	1 1 0 0 1 0 0 1 0-1 0-1 0 0 0 1 1				
32	1.2728418312	4	1 1 1 0 0-1-1 0 1 1 0-1-1-1 1				
32	1.2745878844	4	1 0 0 0 0 1 0 0 1 0 0 0 0 0-1				
32	1.2751508708	4	1 0 0 0 1 0 0 0 0 0-1 0 0 0 0 1				
32	1.2780877029	4	1 1 0-1 0 1 0 0 1 0 0-1 0-1 0 1 1				
32	1.2782923176	3	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1				
32	1.2789123784	2	1 1 0-1-1 0 1 1 0 0 0 0 1 1 1				
32	1.2790255955	2	1 1 1 0 0 0 1 1 0 0 0 0 1 1 1				
32	1.2818607162	2	1 1 0 0 0 1 1 0 0 0 1 1 0 0 1 1				
32	1.2835898167	4	1 1 0-1-1 0 1 0 1 0-1 1 0 1 0 1				
32	1.2844189734	6	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1				
32	1.2851233296	5	1 0 0 0 0 1-1 0 0 0 0 0 0 0 0-1				
32	1.2856029138	4	1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 1				
32	1.2866673208	4	1 0 1 0 1 1 1 0 1 0 0 0 0 0 0 1				
32	1.2875989641	3	1 1 0 0 0-1 0 1 0 1 0-1-1 0 1 1				
32	1.2877821774	3	1 0 0 0 1 0 0 1 0 0 1 0 1 0 0 1				
32	1.2882999150	4	1 1 1 1 1 1 0 0 0 0 0-1-1-1-1				
32	1.2883136648	4	1 0 1 1 0 1 0 0 1 0 1 0 1 0 0 1				