

**A Collection of  
Numerical Solutions of  
Multigrade Equations  
Related to the  
Prouhet-Tarry-Escott  
Problem**

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## Notes

I am interested only in solutions leading to symmetric PTE solutions, hence I require a multigrade to be satisfied by all exponents of the same parity up to a certain level.

Pure product solution comes from multiplying polynomials of the form

$$x^p - x^{-p}$$

and then extracting solutions in the well known way.

For even powers there is the same number of terms on both sides (I do not discard zero terms).

For odd powers numbers of left and right terms may differ.

Solution code is composed from:

the largest power

total number of terms

the largest term (this can be skipped for powers over 30)

the second, third ... largest terms of any side (if needed)

## The best results known to me at the moment

Max exponent	Number of terms	Ideal	Known/Ideal
8	10	10	1.000
9	12	11	1.091
10	12	12	1.000
11	20	13	1.538
12	28	14	2.000
13	26	15	1.733
14	30	16	1.875
15	34	17	2.000
16	42	18	2.333
17	48	19	2.526
18	58	20	2.900
19	65	21	3.095
20	70	22	3.182

Max exponent	Number of terms	Ideal	Known/Ideal
21	78	23	3.391
22	92	24	3.833
23	94	25	3.760
24	114	26	4.385
25	133	27	4.926
26	140	28	5.000
27	158	29	5.448
28	174	30	5.800
29	172	31	5.548
30	208	32	6.500
31	226	33	6.848
32	258	34	7.588
33	252	35	7.200
34	246	36	6.833
35	292	37	7.892
36	326	38	8.579
37	344	39	8.821
38	342	40	8.550
39	388	41	9.463
40	444	42	10.571
41	451	43	10.488
42	514	44	11.682
43	545	45	12.111
44	588	46	12.783
45	613	47	13.043
46	642	48	13.375
47	696	49	14.204
48	724	50	14.480
49	830	51	16.275
50	872	52	16.769
51	834	53	15.736
52	896	54	16.593
53	958	55	17.418
54	1072	56	19.143
55	1162	57	20.386
56	1206	58	20.793
57	1218	59	20.644
58	1248	60	20.800
59	1270	61	20.820
60	1376	62	22.194

Max exponent	Number of terms	Ideal	Known/Ideal
61	1517	63	24.079
62	1464	64	22.875
63	1694	65	26.062
64	1750	66	26.515
65	1866	67	27.851
66	1902	68	27.971
67	1990	69	28.841
68	1994	70	28.486
69	2120	71	29.859
70	2224	72	30.889
71	2372	73	32.493
72	2618	74	35.378
73	2947	75	39.293
74	2906	76	38.237
75	2902	77	37.688
76	2822	78	36.179
77	2853	79	36.114
78	3150	80	39.375
79	3386	81	41.802
80	3604	82	43.951
81	3903	83	47.024
82	4136	84	49.238
83	4502	85	52.965
84	4542	86	52.814
85	4451	87	51.161
86	4238	88	48.159
87	4426	89	49.730
88	4518	90	50.200
89	5154	91	56.637
90	5476	92	59.522
91	6162	93	66.258
92	6636	94	70.596
93	6705	95	70.579
94	6764	96	70.458
95	6846	97	70.577
96	6422	98	65.531
97	6629	99	66.960
98	7436	100	74.360
99	7986	101	79.069
100	8340	102	81.765

Solution code: **8.10.313**

**Powers: 2, 4, 6, 8.**

Number of terms: **10**

Number of left terms: **5**

Number of right terms: **5**

**Left terms:**

313, 301, 188, 100, 99

**Right terms:**

308, 307, 180, 131, 71

**Remarks:**

Discovered by Peter Borwein, Petr Lisonek and Colin Percival (2002).

Solution code: **8.10.515**

**Powers: 2, 4, 6, 8.**

Number of terms: **10**

Number of left terms: **5**

Number of right terms: **5**

**Left terms:**

515, 452, 366, 189, 103

**Right terms:**

508, 471, 331, 245, 18

**Remarks:**

Discovered by Peter Borwein, Petr Lisonek and Colin Percival (2002).

Used by Jarosław Wróblewski (November 27, 2009) to produce solution **9.12.1293**.

Solution code: **8.10.23750**

**Powers: 2, 4, 6, 8.**

Number of terms: **10**

Number of left terms: **5**

Number of right terms: **5**

**Left terms:**

23750, 20667, 20449, 11857, 436

**Right terms:**

23738, 20885, 20231, 11881, 12

**Remarks:**

The smallest member of family of solutions discovered by A. Letac in 1940's.

Solution code	Right terms	Left terms
<b>8.12.36</b>	36, 31, 30, 17, 7, 1	35, 34, 27, 19, 4, 3
<b>8.12.62</b>	62, 54, 47, 35, 27, 9	61, 57, 42, 37, 30, 1
<b>8.12.66</b>	66, 59, 57, 55, 28, 16	64, 62, 60, 49, 33, 11
<b>8.12.71</b>	71, 63, 50, 23, 18, 9	69, 67, 42, 37, 6, 5
<b>8.12.74</b>	74, 67, 47, 46, 27, 15	73, 69, 45, 41, 38, 2
<b>8.12.109</b>	109, 97, 91, 88, 54, 30	107, 99, 98, 74, 65, 24
<b>8.12.111</b>	111, 86, 81, 28, 25, 22	110, 94, 63, 57, 4, 1
<b>8.12.113</b>	113, 97, 89, 52, 31, 10	109, 107, 74, 67, 20, 13
<b>8.12.114</b>	114, 97, 89, 70, 43, 24	111, 106, 75, 73, 56, 2
<b>8.12.119.115</b>	119, 97, 94, 92, 45, 30	115, 111, 90, 74, 68, 7
<b>8.12.119.118</b>	119, 94, 85, 43, 38, 37	118, 101, 67, 61, 50, 7
<b>8.12.137</b>	137, 120, 110, 73, 57, 3	135, 127, 97, 88, 45, 18
<b>8.12.139</b>	139, 124, 115, 89, 42, 18	135, 133, 106, 93, 46, 4
<b>8.12.151</b>	151, 139, 117, 58, 55, 28	149, 143, 113, 70, 37, 36
<b>8.12.158</b>	158, 137, 126, 125, 76, 55	154, 148, 127, 106, 95, 45
<b>8.12.163</b>	163, 145, 138, 103, 56, 14	161, 152, 131, 105, 58, 2
<b>8.12.167</b>	167, 150, 122, 89, 71, 47	163, 158, 109, 93, 85, 34
<b>8.12.179.172</b>	179, 151, 150, 108, 67, 38	172, 171, 123, 122, 74, 25
<b>8.12.179.173</b>	179, 149, 139, 65, 63, 57	173, 167, 111, 91, 81, 5
<b>8.12.179.178</b>	179, 142, 132, 83, 59, 35	178, 151, 111, 103, 55, 28
<b>8.12.195</b>	195, 169, 148, 98, 71, 42	190, 182, 127, 111, 84, 13
<b>8.12.211</b>	211, 165, 155, 59, 54, 44	209, 180, 121, 111, 31, 10
<b>8.12.212</b>	212, 189, 167, 114, 83, 10	206, 202, 148, 133, 75, 9
<b>8.12.222</b>	222, 182, 164, 59, 55, 41	220, 193, 146, 97, 26, 21
<b>8.12.229</b>	229, 215, 166, 118, 63, 48	224, 222, 162, 113, 89, 5
<b>8.12.237</b>	237, 206, 195, 88, 49, 41	231, 223, 179, 104, 50, 3
<b>8.12.243</b>	243, 219, 178, 112, 71, 50	240, 226, 167, 126, 67, 43
<b>8.12.245</b>	245, 213, 202, 141, 101, 22	239, 231, 178, 158, 97, 15
<b>8.12.265.256</b>	265, 240, 204, 179, 73, 67	256, 255, 197, 172, 111, 5
<b>8.12.265.257</b>	265, 229, 223, 133, 72, 4	257, 252, 200, 149, 43, 41
<b>8.12.265.264</b>	265, 229, 219, 108, 88, 6	264, 236, 211, 122, 57, 45
<b>8.12.267</b>	267, 245, 177, 104, 79, 4	265, 249, 168, 124, 61, 13
<b>8.12.282.277</b>	282, 237, 223, 122, 107, 53	277, 257, 197, 138, 118, 3
<b>8.12.282.278</b>	282, 229, 215, 107, 54, 47	278, 250, 177, 149, 37, 9
<b>8.12.295</b>	295, 216, 203, 106, 91, 78	294, 232, 169, 126, 125, 13

**Remarks:**

**Powers: 2, 4, 6, 8** with  $6+6=12$  terms.

Results of a selective search by Jarosław Wróblewski (December 2009).



Solution code	Right terms	Left terms
<b>8.12.303</b>	303, 265, 227, 119, 81, 19	291, 289, 191, 167, 45, 7
<b>8.12.325</b>	325, 277, 271, 201, 131, 57	317, 305, 233, 219, 139, 39
<b>8.12.326</b>	326, 273, 243, 227, 112, 89	317, 301, 208, 207, 186, 7
<b>8.12.347</b>	347, 289, 246, 112, 97, 54	343, 306, 194, 192, 43, 41
<b>8.12.358</b>	358, 329, 323, 281, 75, 12	357, 335, 317, 282, 76, 1
<b>8.12.362</b>	362, 295, 291, 163, 118, 81	353, 333, 233, 205, 134, 6
<b>8.12.365</b>	365, 305, 291, 219, 139, 79	355, 339, 241, 229, 181, 15
<b>8.12.370</b>	370, 311, 252, 201, 101, 61	369, 316, 241, 205, 123, 14
<b>8.12.375</b>	375, 325, 266, 184, 162, 61	371, 338, 230, 215, 171, 24
<b>8.12.389</b>	389, 354, 329, 281, 80, 50	379, 375, 304, 295, 94, 14
<b>8.12.392</b>	392, 328, 308, 241, 125, 109	385, 356, 277, 224, 197, 32
<b>8.12.405</b>	405, 362, 351, 205, 162, 49	393, 390, 331, 210, 167, 29
<b>8.12.407.398.383</b>	407, 365, 284, 242, 163, 79	398, 383, 251, 233, 220, 11
<b>8.12.407.398.385</b>	407, 363, 328, 265, 98, 70	398, 385, 293, 287, 120, 22
<b>8.12.407.405</b>	407, 386, 249, 129, 105, 2	405, 389, 243, 154, 74, 27
<b>8.12.412</b>	412, 358, 337, 161, 154, 27	407, 378, 314, 203, 92, 71
<b>8.12.418</b>	418, 368, 335, 237, 149, 66	402, 401, 302, 253, 165, 16
<b>8.12.421</b>	421, 357, 343, 274, 76, 62	419, 372, 323, 281, 98, 14
<b>8.12.438</b>	438, 389, 335, 256, 122, 97	430, 409, 302, 277, 151, 48
<b>8.12.449</b>	449, 397, 381, 374, 300, 28	436, 431, 363, 357, 316, 10
<b>8.12.470</b>	470, 396, 382, 257, 183, 61	465, 423, 349, 268, 194, 22
<b>8.12.471</b>	471, 407, 379, 295, 163, 105	453, 449, 335, 303, 209, 35
<b>8.12.513</b>	513, 410, 336, 218, 109, 77	512, 418, 315, 241, 123, 14
<b>8.12.538</b>	538, 472, 415, 321, 137, 114	529, 498, 361, 358, 177, 40

**Remarks:**

**Powers: 2, 4, 6, 8** with  $6+6=12$  terms.

Results of a selective search by Jarosław Wróblewski (December 2009).

Solution code: **8.12.541**

**Powers: 2, 4, 6, 8.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

541, 503, 339, 176, 140, 73

**Right terms:**

532, 517, 305, 251, 96, 31

**Remarks:**

A member of family of solutions discovered by Jarosław Wróblewski (November 2009).

Left side terms:

$$2 a + 5 b + d$$

$$2 a + 5 b - d$$

$$5 a - 2 b + c$$

$$5 a - 2 b - c$$

$$4 a + 6 b$$

$$6 a - 4 b$$

Right side terms:

$$5 a + 2 b + c$$

$$5 a + 2 b - c$$

$$-2 a + 5 b + d$$

$$-2 a + 5 b - d$$

$$6 a + 4 b$$

$$-4 a + 6 b$$

Assume:

$$c^2 = p * a^2 + q * b^2$$

$$d^2 = p * b^2 + q * a^2$$

$$p = -11/5$$

$$q = 64/5$$

This solution is obtained with

$$a = 118$$

$$b = 89$$

$$c = 266$$

$$d = 401$$

Solution code: **8.12.55292**

**Powers: 2, 4, 6, 8.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

55292, 50841, 50712, 41050, 23681, 11369

**Right terms:**

54280, 54151, 45759, 44489, 20902, 14148

**Remarks:**

A member of family of solutions discovered by Jarosław Wróblewski (November 2009).

Left side terms:

$a + 10 b + d$

$a + 10 b - d$

$10 a - b + c$

$10 a - b - c$

$a + 11 b$

$11 a - b$

Right side terms:

$10 a + b + c$

$10 a + b - c$

$-a + 10 b + d$

$-a + 10 b - d$

$11 a + b$

$-a + 11 b$

Assume:

$$c^2 = p * a^2 + q * b^2$$

$$d^2 = p * b^2 + q * a^2$$

$$p = -27/5$$

$$q = 248/5$$

This solution is obtained with

$a = 9533$

$b = 3439$

$c = 9791$

$d = 66661$

Solution code: **9.12.323**

**Powers: 1, 3, 5, 7, 9.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

323, 289, 269, 173, 91, 7

**Right terms:**

313, 311, 247, 193, 59, 29

**Remarks:**

Discovered by Chen Shuwen (2000).

Solution code: **9.12.407**

**Powers: 1, 3, 5, 7, 9.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

407, 347, 341, 181, 163, 23

**Right terms:**

403, 371, 311, 221, 119, 37

**Remarks:**

Discovered by Jarosław Wróblewski (November 28, 2009).

Solution code: **9.12.463**

**Powers: 1, 3, 5, 7, 9.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

463, 391, 335, 217, 161, 43

**Right terms:**

461, 403, 287, 283, 91, 85

**Remarks:**

Discovered by Jarosław Wróblewski (November 28, 2009).

Solution code: **9.12.1293**

**Powers: 1, 3, 5, 7, 9.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

1293, 1167, 995, 679, 399, 57

**Right terms:**

1279, 1205, 925, 767, 299, 115

**Remarks:**

Constructed by Jarosław Wróblewski (November 27, 2009) from solution **8.10.515**.

Solution code: **10.12.151**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

151, 140, 127, 86, 61, 22

**Right terms:**

148, 146, 121, 94, 47, 35

**Remarks:**

Discovered by Nuutti Kuosa (1999) using a computer program written by Jean-Charles Meyrignac, as a single-grade solution to power 10. Four days later Chen Shuwen noticed it was in fact a multigrade.



Solution code: **10.12.1511**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

1511, 1138, 1075, 700, 622, 107

**Right terms:**

1510, 1180, 953, 886, 413, 293

**Remarks:**

The smallest solution of the infinite family of solutions constructed in:

Ajai Choudhry, Jarosław Wróblewski, *Ideal Solutions of the Tarry-Escott Problem of degree eleven with applications to Sums of Thirteenth Powers*, Hardy-Ramanujan Journal, Vol. 31 (2008) pp. 1-13

Solution code: **10.12.2058**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

2058, 1896, 1618, 1109, 891, 257

**Right terms:**

2037, 1947, 1514, 1294, 639, 472

**Remarks:**

Discovered by David Broadhurst (2007):

D. Broadhurst, *A Chinese Prouhet-Tarry-Escott solution*,

<http://physics.open.ac.uk/~dbroadhu/cpte.pdf>

The second known solution.

It was later used by Ajai Choudhry and Jarosław Wróblewski to produce an infinite family of solutions:

Ajai Choudhry, Jarosław Wróblewski, *Ideal Solutions of the Tarry-Escott Problem of degree eleven with applications to Sums of Thirteenth Powers*, Hardy-Ramanujan Journal, Vol. 31 (2008) pp. 1-13

Solution code: **10.12.14770**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

14770, 12638, 11632, 7115, 7043, 929

**Right terms:**

14693, 13165, 10112, 9718, 4054, 3455

**Remarks:**

3rd smallest solution of the infinite family of solutions constructed in:

Ajai Choudhry, Jarosław Wróblewski, *Ideal Solutions of the Tarry-Escott Problem of degree eleven with applications to Sums of Thirteenth Powers*, Hardy-Ramanujan Journal, Vol. 31 (2008) pp. 1-13

Solution code: **10.12.23742**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **12**

Number of left terms: **6**

Number of right terms: **6**

**Left terms:**

23742, 18687, 18372, 12734, 9611, 349

**Right terms:**

23708, 19653, 16426, 14714, 7713, 3309

**Remarks:**

4th smallest solution of the infinite family of solutions constructed in:

Ajai Choudhry, Jarosław Wróblewski, *Ideal Solutions of the Tarry-Escott Problem of degree eleven with applications to Sums of Thirteenth Powers*, Hardy-Ramanujan Journal, Vol. 31 (2008) pp. 1-13

Solution code: **10.14.68**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **14**

Number of left terms: **7**

Number of right terms: **7**

**Left terms:**

68, 61, 55, 32, 31, 28, 1

**Right terms:**

67, 64, 49, 44, 23, 20, 17

Solution code: **10.14.400**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **14**

Number of left terms: **7**

Number of right terms: **7**

**Left terms:**

400, 365, 359, 254, 242, 89, 35

**Right terms:**

395, 383, 341, 271, 230, 70, 64

**Remarks:**

Constructed by Tito Piezas and Jarosław Wróblewski (November 2009).

Solution code: **10.14.4139**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **14**

Number of left terms: **7**

Number of right terms: **7**

**Left terms:**

4139, 3812, 3691, 2545, 2468, 979, 448

**Right terms:**

4111, 3923, 3580, 2684, 2357, 896, 587

**Remarks:**

Constructed by Tito Piezas and Jarosław Wróblewski (November 2009).

Solution code: **10.14.12689**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **14**

Number of left terms: **7**

Number of right terms: **7**

**Left terms:**

12689, 10560, 9236, 6755, 5745, 3767, 1324

**Right terms:**

12676, 10711, 8733, 7585, 5280, 3164, 2305

**Remarks:**

Constructed by Tito Piezas and Jarosław Wróblewski (November 2009).



Solution code: **10.16.93**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

93, 87, 72, 52, 44, 41, 29, 1

**Right terms:**

92, 89, 67, 61, 39, 36, 33, 8

Solution code: **10.16.113**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

113, 103, 91, 64, 59, 34, 10, 2

**Right terms:**

112, 106, 85, 74, 53, 26, 23, 1

Solution code: **10.16.132**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

132, 117, 103, 71, 61, 59, 56, 12

**Right terms:**

131, 121, 92, 84, 72, 43, 39, 37

Solution code: **10.16.155**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

155, 135, 133, 97, 93, 93, 55, 17

**Right terms:**

153, 145, 115, 107, 105, 83, 43, 33

Solution code: **10.16.172**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

172, 159, 149, 135, 106, 78, 43, 14

**Right terms:**

169, 166, 140, 138, 111, 74, 37, 27

Solution code: **10.16.173**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

173, 156, 143, 104, 92, 91, 39, 13

**Right terms:**

168, 167, 123, 116, 113, 61, 44, 29

Solution code: **10.16.188**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

188, 168, 166, 125, 114, 83, 39, 25

**Right terms:**

183, 182, 151, 131, 120, 62, 60, 19

Solution code: **10.16.193**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

193, 179, 164, 100, 75, 72, 51, 31

**Right terms:**

191, 184, 159, 109, 68, 60, 53, 45

**Remarks:**

By a proper sign changes we can make the solution work for powers 1 and 3:

**Left terms:**

193, -179, 164, -100, 75, 72, 51, -31

**Right terms:**

191, -184, 159, 109, -68, -60, 53, 45



Solution code: **10.16.2567**

**Powers: 2, 4, 6, 8, 10.**

Number of terms: **16**

Number of left terms: **8**

Number of right terms: **8**

**Left terms:**

2567, 2339, 2283, 1544, 1426, 710, 479, 237

**Right terms:**

2536, 2449, 2173, 1654, 1347, 631, 510, 347

**Remarks:**

Constructed by Tito Piezas and Jarosław Wróblewski (November 2009).

Solution code: **11.20.107**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

107, 101, 86, 78, 66, 55, 43, 25, 19, 13

**Right terms:**

106, 103, 81, 79, 73, 50, 38, 30, 27, 6

**Remarks:**

Derived from solution **10.16.93**.

Solution code: **11.20.139**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **11**

Number of right terms: **9**

**Left terms:**

139, 125, 125, 113, 95, 85, 67, 65, 31, 5, 1

**Right terms:**

137, 133, 119, 107, 101, 91, 61, 53, 49

**Remarks:**

Derived from solution **10.14.68**.

Solution code: **11.20.178**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **11**

Number of right terms: **9**

**Left terms:**

178, 167, 154, 119, 94, 88, 67, 49, 20, 8, 5

**Right terms:**

175, 173, 148, 124, 100, 74, 62, 59, 34

**Remarks:**

Derived from solution **10.12.151**.

Solution code: **11.20.199**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **11**

Number of right terms: **9**

**Left terms:**

199, 182, 169, 141, 118, 97, 90, 39, 35, 18, 3

**Right terms:**

194, 193, 149, 147, 139, 78, 70, 66, 55

**Remarks:**

Derived from solution **10.16.173**.

Solution code: **11.20.327**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

327, 305, 279, 271, 217, 197, 163, 69, 69, 45

**Right terms:**

321, 317, 277, 255, 229, 213, 119, 97, 95, 19

**Remarks:**

Derived from solution **10.12.151**.

Solution code: **11.20.329**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

329, 307, 281, 265, 199, 161, 149, 71, 67, 43

**Right terms:**

323, 319, 275, 253, 227, 145, 121, 97, 95, 17

**Remarks:**

Derived from solution **10.12.151**.

Solution code: **11.20.431**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

431, 409, 383, 301, 251, 167, 163, 113, 85, 7

**Right terms:**

425, 421, 371, 317, 223, 199, 151, 125, 43, 35

**Remarks:**

Derived from solution **10.12.151**.



Solution code: **11.20.569**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

569, 547, 521, 439, 389, 311, 223, 145, 95, 29

**Right terms:**

563, 559, 509, 455, 361, 337, 197, 173, 79, 35

**Remarks:**

Derived from solution **10.12.151**.

Solution code: **11.20.3615**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

3615, 2869, 2743, 2427, 1993, 1837, 1767, 1313, 379, 233

**Right terms:**

3613, 2953, 2499, 2429, 2365, 1683, 1557, 1419, 651, 7

**Remarks:**

Derived from solution **10.12.1511**.

Solution code: **11.20.5155**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **9**

Number of right terms: **11**

**Left terms:**

5155, 4409, 4283, 3533, 3377, 2347, 1919, 887, 733

**Right terms:**

5153, 4493, 4039, 3905, 2959, 2719, 1547, 1307, 361, 143, 17

**Remarks:**

Derived from solution **10.12.1511**.

Solution code: **11.20.6269**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

6269, 5945, 5389, 4371, 3935, 2667, 1921, 1741, 435, 371

**Right terms:**

6227, 6047, 5181, 4741, 3431, 3097, 1963, 1209, 1083, 65

**Remarks:**

Derived from solution **10.12.2058**.

Solution code: **11.20.6625**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **11**

Number of right terms: **9**

**Left terms:**

6625, 6301, 5745, 4727, 4291, 3023, 1995, 1385, 519, 291, 79

**Right terms:**

6583, 6403, 5537, 5097, 3787, 3453, 1607, 1283, 1231

**Remarks:**

Derived from solution **10.12.2058**.

Solution code: **11.20.43107**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **9**

Number of right terms: **11**

**Left terms:**

43107, 38843, 36831, 27797, 27653, 15819, 15425, 12763, 5869

**Right terms:**

42953, 39897, 33791, 33003, 21675, 20477, 15973, 9697, 5459, 663, 519

**Remarks:**

Derived from solution **10.12.14770**.

Solution code: **11.20.48287**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **11**

Number of right terms: **9**

**Left terms:**

48287, 44023, 42011, 32977, 32833, 20605, 16889, 7583, 4661, 1477, 689

**Right terms:**

48133, 45077, 38971, 38183, 26855, 25657, 11837, 10793, 6529

**Remarks:**

Derived from solution **10.12.14770**.

Solution code: **11.20.65507**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **9**

Number of right terms: **11**

**Left terms:**

65507, 55397, 54767, 43491, 37245, 29393, 21283, 17325, 14829

**Right terms:**

65439, 57329, 50875, 47451, 33449, 29461, 24641, 19351, 7445, 2597, 1199

**Remarks:**

Derived from solution **10.12.23742**.



Solution code: **11.20.78905**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **20**

Number of left terms: **10**

Number of right terms: **10**

**Left terms:**

78905, 68795, 68165, 56889, 50643, 32119, 30723, 12199, 7885, 1431

**Right terms:**

78837, 70727, 64273, 60849, 46847, 38039, 24803, 16063, 5323, 1993

**Remarks:**

Derived from solution **10.12.23742**.

Solution code: **11.22.65**

**Powers: 1, 3, 5, 7, 9, 11.**

Number of terms: **22**

Number of left terms: **11**

Number of right terms: **11**

**Left terms:**

65, 60, 59, 47, 45, 40, 30, 18, 16, 10, 4

**Right terms:**

64, 63, 56, 49, 43, 42, 27, 21, 14, 13, 2

**Pure product of:**

1, 2, 3, 4, 5, 7, 9, 11, 13, 16, 17, 19, 23.

Solution code: **12.28.81**

**Powers: 2, 4, 6, 8, 10, 12.**

Number of terms: **28**

Number of left terms: **14**

Number of right terms: **14**

**Left terms:**

81, 74, 73, 72, 59, 52, 50, 48, 44, 30, 23, 15, 14, 1

**Right terms:**

80, 78, 71, 69, 62, 54, 49, 47, 40, 33, 25, 18, 4, 4

**Pure product of:**

1, 3, 4, 5, 6, 7, 10, 11, 13, 16, 17, 19, 23, 27.

Solution code: **12.28.82**

**Powers: 2, 4, 6, 8, 10, 12.**

Number of terms: **28**

Number of left terms: **14**

Number of right terms: **14**

**Left terms:**

82, 75, 74, 73, 60, 51, 49, 47, 33, 24, 21, 15, 12, 6

**Right terms:**

81, 79, 72, 70, 63, 54, 45, 44, 36, 27, 18, 17, 9, 5

**Pure product of:**

1, 3, 4, 5, 6, 7, 10, 11, 13, 16, 17, 19, 23, 29.

Solution code: **12.28.169**

**Powers: 2, 4, 6, 8, 10, 12.**

Number of terms: **28**

Number of left terms: **14**

Number of right terms: **14**

**Left terms:**

169, 151, 149, 145, 105, 101, 99, 95, 71, 63, 51, 47, 43, 23

**Right terms:**

167, 161, 139, 135, 133, 89, 85, 83, 81, 79, 61, 39, 33, 25

**Pure product of:**

1, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19, 23, 31.

Solution code: **13.26.173**

**Powers: 1, 3, 5, 7, 9, 11, 13.**

Number of terms: **26**

Number of left terms: **13**

Number of right terms: **13**

**Left terms:**

173, 159, 157, 131, 129, 107, 103, 79, 75, 51, 25, 9, 1

**Right terms:**

171, 167, 141, 139, 137, 97, 93, 89, 85, 43, 19, 15, 3

**Pure product of:**

1, 3, 4, 5, 6, 7, 9, 10, 11, 13, 16, 17, 19, 23, 29.

**Remarks:**

Published by L.J. Lander (1973), *Mathematics of Computation* 27 (122), 1973, p. 397

Solution code: **13.28.191**

**Powers: 1, 3, 5, 7, 9, 11, 13.**

Number of terms: **28**

Number of left terms: **14**

Number of right terms: **14**

**Left terms:**

191, 177, 175, 173, 147, 131, 129, 125, 113, 69, 57, 51, 27, 7

**Right terms:**

189, 185, 171, 167, 153, 137, 123, 119, 115, 71, 67, 37, 21, 17

**Pure product of:**

1, 3, 4, 5, 6, 7, 10, 11, 13, 16, 17, 19, 23, 27, 29.

Solution code: **13.30.69**

**Powers: 1, 3, 5, 7, 9, 11, 13.**

Number of terms: **30**

Number of left terms: **14**

Number of right terms: **16**

**Left terms:**

69, 64, 62, 61, 50, 48, 41, 40, 38, 27, 19, 16, 15, 15

**Right terms:**

68, 67, 60, 59, 54, 46, 45, 34, 32, 31, 31, 10, 9, 8, 6, 5

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 15, 16, 17, 19.



Solution code: **13.30.129**

**Powers: 1, 3, 5, 7, 9, 11, 13.**

Number of terms: **30**

Number of left terms: **13**

Number of right terms: **17**

**Left terms:**

129, 119, 115, 89, 87, 85, 83, 47, 43, 41, 37, 25, 23

**Right terms:**

127, 125, 103, 101, 95, 81, 63, 59, 51, 49, 19, 17, 9, 9, 7, 5, 3

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 17, 19.

Solution code: **14.30.153**

**Powers: 2, 4, 6, 8, 10, 12, 14.**

Number of terms: **30**

Number of left terms: **15**

Number of right terms: **15**

**Left terms:**

153, 143, 139, 115, 111, 111, 103, 89, 61, 59, 57, 53, 47, 5, 3

**Right terms:**

151, 149, 127, 123, 123, 99, 95, 93, 73, 65, 51, 43, 41, 23, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 23.

Solution code: **14.32.187**

**Powers: 2, 4, 6, 8, 10, 12, 14.**

Number of terms: **32**

Number of left terms: **16**

Number of right terms: **16**

**Left terms:**

187, 173, 171, 157, 127, 125, 123, 121, 83, 79, 75, 71, 39, 23, 15, 1

**Right terms:**

185, 181, 159, 155, 151, 115, 111, 107, 103, 99, 61, 57, 37, 33, 17, 13

**Pure product of:**

1, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14, 16, 17, 19, 23, 29.

Solution code: **15.34.189**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15.**

Number of terms: **34**

Number of left terms: **18**

Number of right terms: **16**

**Left terms:**

189, 179, 175, 173, 159, 149, 129, 127, 97, 85, 55, 41, 31, 25, 17, 11, 3, 1

**Right terms:**

187, 185, 171, 169, 161, 155, 121, 119, 117, 69, 63, 39, 37, 21, 19, 13

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14, 16, 17, 19, 23, 29.

Solution code: **16.42.95**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16.**

Number of terms: **42**

Number of left terms: **21**

Number of right terms: **21**

**Left terms:**

95, 90, 88, 77, 75, 71, 70, 59, 49, 46, 45, 37, 34, 28, 17, 16, 16, 13, 13, 12, 9

**Right terms:**

94, 93, 82, 81, 79, 68, 67, 56, 55, 53, 35, 32, 31, 29, 27, 26, 20, 7, 6, 5, 0

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 16, 17, 19, 22, 23.

Solution code: **17.48.337**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17.**

Number of terms: **48**

Number of left terms: **24**

Number of right terms: **24**

**Left terms:**

337, 329, 315, 287, 287, 285, 273, 245, 243, 221, 219, 189, 179, 153, 123, 119, 95, 93, 87, 85, 45, 31, 21, 1

**Right terms:**

335, 333, 305, 303, 291, 269, 267, 261, 239, 225, 205, 201, 173, 157, 117, 113, 107, 103, 83, 73, 47, 39, 9, 7

**Pure product of:**

1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 17, 19, 23, 29, 31, 41, 43, 53.

Solution code: **18.58.257**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18.**

Number of terms: **58**

Number of left terms: **29**

Number of right terms: **29**

**Left terms:**

257, 247, 243, 219, 215, 213, 211, 191, 185, 177, 155, 147, 143, 141, 127, 119, 103, 97, 77, 73, 71, 69, 69, 45, 45, 21, 13, 11, 3

**Right terms:**

255, 253, 231, 227, 227, 203, 197, 197, 195, 169, 159, 157, 139, 131, 123, 121, 111, 93, 87, 81, 65, 63, 57, 53, 35, 29, 23, 9, 5

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 31.

**Remarks:**

My original own search gave 64 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **18.64.185**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18.**

Number of terms: **64**

Number of left terms: **32**

Number of right terms: **32**

**Left terms:**

185, 181, 174, 160, 160, 159, 153, 139, 138, 135, 118, 114, 111, 96, 86, 84, 76, 64, 63, 62, 59, 42, 39, 37, 35, 32, 25, 17, 13, 12, 7, 3

**Right terms:**

184, 183, 169, 168, 162, 152, 148, 147, 141, 127, 120, 119, 105, 95, 94, 75, 73, 73, 68, 58, 53, 45, 43, 36, 31, 30, 26, 21, 16, 6, 6, 1

**Pure product of:**

1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 17, 19, 23, 29, 31, 33, 41, 43, 53.



Solution code: **19.65.143**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.**

Number of terms: **65**

Number of left terms: **33**

Number of right terms: **32**

**Left terms:**

143, 138, 136, 124, 122, 121, 120, 110, 103, 101, 99, 88, 87, 86, 85, 84, 83, 66, 65, 64, 53, 51, 51, 50, 49, 37, 25, 18, 16, 14, 13, 9, 4

**Right terms:**

142, 141, 130, 128, 128, 116, 114, 113, 109, 95, 94, 93, 93, 91, 81, 80, 76, 75, 61, 59, 58, 57, 56, 45, 43, 34, 24, 22, 20, 19, 10, 8

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31.

**Remarks:**

My original own search gave 74 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **19.74.287**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.**

Number of terms: **74**

Number of left terms: **37**

Number of right terms: **37**

**Left terms:**

287, 277, 273, 251, 247, 239, 235, 221, 199, 193, 183, 181, 179, 171, 145, 141, 135, 131, 129, 129, 125, 123, 105, 105, 99, 93, 77, 75, 65, 63, 55, 51, 37, 35, 25, 9, 7

**Right terms:**

285, 283, 261, 259, 255, 231, 227, 225, 207, 191, 189, 185, 167, 155, 151, 149, 139, 137, 137, 133, 113, 111, 109, 97, 97, 91, 83, 81, 79, 53, 49, 43, 43, 39, 23, 17, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 16, 17, 19, 22, 23, 25, 31, 41.

Solution code: **20.70.173**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.**

Number of terms: **70**

Number of left terms: **35**

Number of right terms: **35**

**Left terms:**

173, 168, 166, 163, 156, 154, 153, 134, 127, 125, 115, 106, 96, 95, 86, 86, 84, 74, 72, 70, 67, 60, 56, 46, 45, 36, 27, 26, 25, 24, 17, 15, 13, 7, 3

**Right terms:**

172, 171, 162, 161, 160, 158, 148, 136, 126, 123, 119, 101, 100, 91, 89, 88, 79, 78, 75, 69, 65, 59, 53, 49, 41, 40, 30, 30, 21, 20, 18, 18, 8, 6, 2

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 37.

**Remarks:**

My original own search gave 88 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **20.88.129**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.**

Number of terms: **88**

Number of left terms: **44**

Number of right terms: **44**

**Left terms:**

129, 126, 123, 122, 118, 113, 113, 111, 102, 97, 92, 91, 90, 89, 86, 79, 76, 70, 70, 70, 65,  
59, 59, 53, 52, 49, 44, 43, 37, 37, 33, 32, 31, 24, 17, 16, 16, 15, 12, 11, 9, 5, 4, 0

**Right terms:**

128, 128, 121, 121, 119, 117, 112, 108, 101, 99, 95, 93, 87, 84, 84, 82, 80, 73, 67, 66, 62,  
61, 60, 60, 47, 46, 45, 41, 40, 39, 34, 34, 25, 23, 20, 19, 14, 14, 13, 13, 7, 2, 1, 1

**Pure product of:**

1, 1, 2, 3, 4, 5, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 19, 23, 25, 29, 31.

Solution code: **21.78.178**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21.**

Number of terms: **78**

Number of left terms: **39**

Number of right terms: **39**

**Left terms:**

178, 173, 171, 159, 157, 156, 155, 143, 139, 132, 130, 121, 118, 114, 111, 100, 95, 91, 89, 86, 77, 75, 73, 72, 61, 60, 50, 48, 44, 36, 32, 30, 29, 25, 18, 16, 15, 13, 1

**Right terms:**

177, 176, 165, 163, 163, 151, 149, 148, 141, 129, 128, 124, 122, 110, 106, 105, 94, 93, 90, 81, 81, 80, 69, 67, 62, 58, 55, 46, 45, 40, 35, 26, 23, 23, 21, 19, 11, 10, 7

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 37.

**Remarks:**

My original own search gave 92 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **21.92.317**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21.**

Number of terms: **92**

Number of left terms: **46**

Number of right terms: **46**

**Left terms:**

317, 311, 307, 303, 285, 285, 275, 265, 261, 255, 243, 241, 241, 203, 199, 199, 189, 189, 175, 165, 157, 153, 147, 133, 119, 113, 109, 107, 97, 83, 77, 73, 71, 67, 67, 49, 43, 35, 31, 29, 25, 25, 19, 11, 1, 1

**Right terms:**

315, 315, 305, 301, 291, 283, 273, 263, 257, 257, 249, 249, 227, 211, 205, 187, 187, 185, 181, 169, 163, 145, 141, 135, 127, 117, 103, 99, 93, 91, 85, 79, 69, 59, 55, 51, 47, 45, 37, 23, 21, 17, 13, 13, 9, 3

**Pure product of:**

1, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 19, 23, 25, 27, 29, 31, 37.

Solution code: **22.92.285**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22.**

Number of terms: **92**

Number of left terms: **46**

Number of right terms: **46**

**Left terms:**

285, 279, 275, 269, 259, 259, 253, 249, 237, 233, 217, 203, 203, 201, 199, 199, 193, 185, 177, 167, 163, 159, 151, 151, 151, 133, 131, 117, 111, 107, 101, 95, 91, 91, 81, 81, 77, 77, 65, 59, 51, 45, 41, 41, 5, 1

**Right terms:**

283, 283, 273, 265, 261, 261, 257, 247, 231, 231, 221, 215, 209, 197, 191, 189, 189, 179, 179, 179, 175, 157, 155, 139, 139, 139, 137, 115, 109, 105, 105, 103, 89, 89, 83, 79, 73, 73, 67, 63, 61, 39, 33, 31, 21, 19

**Pure product of:**

1, 1, 2, 3, 4, 5, 6, 7, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 22, 23, 29, 31.

Solution code: **23.94.216**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23.**

Number of terms: **94**

Number of left terms: **47**

Number of right terms: **47**

**Left terms:**

216, 211, 209, 197, 195, 194, 193, 180, 177, 173, 168, 166, 152, 151, 149, 145, 138, 133, 126, 121, 113, 109, 102, 101, 99, 87, 82, 77, 70, 66, 65, 62, 54, 53, 51, 48, 39, 38, 37, 34, 26, 23, 15, 14, 12, 10, 3

**Right terms:**

215, 214, 203, 201, 201, 189, 187, 186, 176, 175, 167, 162, 158, 153, 143, 142, 139, 136, 128, 118, 114, 111, 103, 100, 92, 89, 86, 75, 72, 69, 64, 61, 57, 47, 47, 45, 45, 41, 33, 33, 29, 25, 21, 13, 9, 8, 2

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 41.

**Remarks:**

My original own search gave 118 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).



Solution code: **23.118.279**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23.**

Number of terms: **118**

Number of left terms: **61**

Number of right terms: **57**

**Left terms:**

279, 273, 273, 273, 259, 253, 251, 247, 245, 235, 221, 221, 205, 197, 197, 195, 187, 177, 171, 169, 165, 157, 147, 137, 135, 135, 129, 129, 123, 123, 121, 117, 117, 95, 89, 87, 81, 79, 79, 73, 73, 73, 73, 71, 67, 65, 61, 47, 41, 31, 25, 23, 23, 23, 19, 15, 13, 13, 11, 5, 3

**Right terms:**

277, 277, 275, 267, 261, 255, 249, 249, 243, 233, 227, 213, 209, 201, 199, 193, 181, 175, 175, 163, 161, 161, 153, 151, 133, 133, 127, 125, 125, 119, 113, 113, 105, 103, 99, 93, 93, 91, 77, 77, 75, 75, 63, 57, 51, 51, 45, 45, 45, 43, 39, 39, 37, 27, 27, 27, 1

**Pure product of:**

1, 1, 2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.

Solution code: **24.114.471**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.**

Number of terms: **114**

Number of left terms: **57**

Number of right terms: **57**

**Left terms:**

471, 461, 457, 433, 429, 427, 425, 399, 385, 375, 371, 367, 363, 343, 341, 339, 337, 335, 333, 329, 313, 305, 291, 285, 281, 277, 257, 247, 243, 241, 233, 197, 193, 171, 169, 147, 145, 145, 141, 139, 117, 113, 111, 107, 99, 83, 75, 59, 55, 51, 51, 45, 27, 27, 23, 21, 3

**Right terms:**

469, 467, 445, 441, 441, 417, 413, 411, 383, 379, 373, 355, 355, 351, 349, 347, 345, 325, 323, 321, 317, 307, 297, 293, 275, 263, 261, 259, 251, 227, 223, 211, 187, 177, 165, 159, 153, 133, 129, 129, 125, 121, 105, 101, 97, 93, 81, 65, 57, 57, 39, 37, 33, 29, 15, 9, 7

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41.

**Remarks:**

My original own search gave 136 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **24.136.385**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24.**

Number of terms: **136**

Number of left terms: **68**

Number of right terms: **68**

**Left terms:**

385, 375, 371, 349, 343, 337, 333, 331, 329, 321, 307, 303, 295, 293, 287, 281, 273, 267, 267, 265, 261, 251, 239, 231, 225, 223, 213, 209, 207, 201, 197, 197, 195, 185, 159, 159, 145, 143, 139, 137, 131, 131, 129, 127, 123, 121, 117, 115, 115, 103, 89, 73, 73, 67, 61, 61, 59, 51, 51, 49, 47, 45, 39, 37, 33, 19, 9, 3

**Right terms:**

383, 381, 361, 355, 347, 345, 327, 325, 319, 313, 313, 311, 305, 297, 291, 275, 271, 269, 259, 255, 249, 247, 243, 241, 237, 233, 229, 219, 193, 189, 183, 183, 177, 177, 173, 167, 163, 161, 151, 147, 147, 135, 113, 111, 111, 107, 107, 101, 99, 97, 91, 85, 83, 81, 77, 71, 69, 65, 65, 43, 41, 29, 27, 21, 15, 11, 1, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 22, 23, 25, 26, 29, 31, 37.

Solution code: **25.133.229**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25.**

Number of terms: **133**

Number of left terms: **67**

Number of right terms: **66**

**Left terms:**

229, 224, 222, 213, 207, 206, 204, 203, 202, 200, 190, 187, 186, 186, 185, 184, 182, 181, 177, 168, 164, 164, 161, 160, 159, 158, 157, 143, 142, 139, 138, 138, 136, 135, 119, 117, 115, 113, 112, 104, 96, 95, 93, 91, 90, 89, 75, 74, 68, 64, 57, 48, 46, 46, 44, 41, 40, 30, 28, 26, 25, 24, 23, 10, 7, 5, 1

**Right terms:**

228, 227, 217, 214, 212, 210, 201, 199, 196, 195, 194, 194, 192, 189, 188, 178, 176, 174, 173, 172, 171, 169, 167, 156, 152, 150, 150, 149, 149, 148, 145, 131, 130, 127, 124, 123, 116, 105, 105, 103, 102, 101, 98, 98, 82, 81, 77, 76, 60, 59, 58, 55, 54, 54, 38, 38, 37, 34, 33, 22, 20, 16, 15, 15, 13, 11

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 41.

Solution code: **25.138.483**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25.**

Number of terms: **138**

Number of left terms: **68**

Number of right terms: **70**

**Left terms:**

483, 473, 469, 455, 441, 439, 437, 433, 429, 411, 405, 401, 399, 397, 383, 379, 375, 371, 353, 349, 347, 345, 343, 343, 341, 339, 313, 311, 303, 297, 295, 289, 285, 281, 259, 255, 253, 251, 249, 247, 215, 211, 209, 205, 183, 175, 157, 153, 153, 151, 147, 125, 123, 121, 119, 117, 111, 89, 85, 81, 67, 63, 57, 53, 45, 35, 25, 17

**Right terms:**

481, 479, 459, 453, 453, 449, 425, 423, 421, 417, 415, 413, 395, 391, 385, 373, 367, 363, 363, 359, 359, 357, 331, 329, 329, 327, 323, 321, 319, 301, 287, 279, 275, 273, 273, 271, 265, 235, 235, 231, 229, 223, 221, 189, 185, 177, 171, 145, 141, 137, 135, 133, 133, 133, 127, 105, 105, 101, 99, 77, 69, 51, 49, 47, 43, 41, 19, 15, 11, 5

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41.

**Remarks:**

My original own search gave 150 terms as the best result.

This solution is taken from *The Prouhet-Tarry-Escott Problem Revisited* by Peter Borwein and Colin Ignalls (1993).

Solution code: **25.150.187.186.185**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25.**

Number of terms: **150**

Number of left terms: **72**

Number of right terms: **78**

**Left terms:**

187, 184, 183, 182, 173, 170, 167, 162, 160, 160, 159, 154, 150, 149, 149, 145, 143, 140, 140, 136, 130, 127, 127, 126, 126, 123, 121, 121, 116, 116, 110, 108, 106, 105, 103, 102, 101, 101, 94, 93, 93, 88, 88, 83, 81, 77, 73, 71, 68, 66, 66, 64, 61, 60, 60, 59, 44, 42, 33, 31, 29, 28, 27, 27, 27, 25, 22, 22, 20, 20, 7, 3

**Right terms:**

186, 185, 185, 178, 175, 172, 166, 163, 158, 157, 156, 155, 153, 152, 152, 144, 142, 141, 135, 134, 133, 131, 128, 124, 122, 120, 119, 119, 119, 118, 114, 112, 111, 109, 100, 98, 97, 95, 92, 91, 90, 89, 87, 85, 84, 79, 78, 76, 75, 75, 58, 56, 54, 52, 52, 51, 46, 46, 45, 45, 43, 41, 21, 18, 17, 15, 13, 13, 12, 11, 10, 8, 8, 6, 6, 5, 2, 1

**Pure product of:**

1, 2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 26, 27, 29, 31.

Solution code: **25.150.187.186.186**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25.**

Number of terms: **150**

Number of left terms: **74**

Number of right terms: **76**

**Left terms:**

187, 184, 182, 180, 174, 171, 167, 163, 163, 161, 159, 154, 150, 150, 150, 150, 146, 143, 141, 139, 133, 131, 129, 129, 126, 126, 122, 122, 120, 116, 113, 109, 108, 106, 103, 101, 101, 88, 88, 73, 71, 69, 68, 67, 67, 65, 60, 60, 53, 48, 47, 45, 43, 39, 36, 34, 32, 32, 32, 30, 30, 28, 27, 27, 25, 24, 23, 19, 15, 4, 4, 4, 2, 2

**Right terms:**

186, 186, 181, 179, 175, 172, 166, 165, 162, 158, 158, 155, 153, 151, 151, 149, 145, 144, 138, 138, 134, 132, 132, 128, 125, 123, 123, 119, 119, 117, 115, 114, 112, 104, 102, 99, 95, 91, 84, 79, 75, 72, 72, 70, 59, 59, 55, 52, 52, 51, 49, 46, 44, 42, 38, 38, 38, 35, 33, 31, 31, 31, 29, 18, 17, 17, 16, 14, 13, 10, 9, 5, 5, 3, 1, 1

**Pure product of:**

1, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 25, 26, 27, 29, 31.

Solution code: **26.140.561**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26.**

Number of terms: **140**

Number of left terms: **70**

Number of right terms: **70**

**Left terms:**

561, 551, 547, 523, 519, 517, 515, 489, 471, 465, 449, 427, 419, 417, 409, 381, 375, 369, 359, 347, 343, 321, 319, 311, 303, 297, 279, 271, 263, 259, 247, 235, 231, 223, 215, 207, 201, 191, 181, 163, 157, 157, 153, 133, 129, 125, 125, 125, 117, 117, 101, 101, 93, 93, 89, 85, 77, 69, 67, 61, 61, 53, 45, 37, 35, 29, 21, 13, 11, 5

**Right terms:**

559, 557, 535, 531, 531, 507, 503, 501, 469, 467, 439, 435, 429, 411, 397, 389, 379, 365, 363, 341, 339, 333, 317, 309, 301, 289, 281, 277, 265, 261, 243, 237, 233, 219, 217, 211, 193, 185, 175, 171, 171, 147, 147, 143, 137, 127, 123, 121, 119, 115, 103, 99, 95, 87, 83, 79, 75, 75, 71, 59, 55, 51, 47, 47, 31, 31, 25, 23, 7, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47.



Solution code: **26.160.397**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26.**

Number of terms: **160**

Number of left terms: **80**

Number of right terms: **80**

**Left terms:**

397, 391, 387, 383, 371, 365, 353, 349, 345, 343, 335, 325, 325, 315, 311, 305, 305, 297, 295, 291, 277, 269, 267, 267, 259, 251, 249, 249, 249, 241, 241, 233, 229, 219, 213, 201, 193, 193, 191, 187, 185, 181, 177, 175, 167, 163, 159, 157, 153, 143, 143, 143, 139, 127, 119, 117, 109, 103, 95, 95, 81, 77, 77, 69, 69, 65, 61, 61, 55, 53, 47, 21, 21, 15, 13, 5, 5, 5, 1, 1

**Right terms:**

395, 395, 385, 381, 373, 367, 351, 347, 347, 341, 337, 321, 319, 319, 319, 313, 303, 293, 293, 285, 273, 265, 265, 265, 261, 261, 257, 257, 255, 245, 231, 227, 209, 207, 207, 203, 203, 199, 199, 199, 195, 189, 179, 169, 155, 149, 149, 149, 145, 145, 145, 145, 141, 141, 141, 115, 97, 93, 91, 91, 91, 87, 83, 83, 73, 71, 51, 39, 37, 37, 33, 31, 29, 25, 25, 25, 23, 17, 17, 3

**Pure product of:**

1, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 34, 35.

Solution code: **27.158.573**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27.**

Number of terms: **158**

Number of left terms: **79**

Number of right terms: **79**

**Left terms:**

573, 563, 559, 545, 531, 529, 527, 523, 519, 501, 495, 491, 489, 483, 461, 457, 455, 439, 431, 429, 427, 421, 417, 399, 393, 387, 385, 381, 371, 367, 359, 355, 333, 327, 323, 315, 305, 297, 283, 275, 271, 269, 265, 253, 243, 227, 225, 221, 213, 207, 199, 193, 181, 175, 173, 169, 165, 163, 137, 137, 137, 135, 129, 129, 125, 109, 103, 101, 97, 79, 75, 73, 63, 47, 47, 39, 35, 19, 7

**Right terms:**

571, 569, 549, 543, 543, 539, 515, 513, 511, 507, 505, 503, 481, 479, 459, 453, 451, 447, 441, 437, 415, 409, 407, 405, 401, 397, 391, 375, 369, 363, 357, 347, 345, 335, 313, 307, 301, 299, 293, 285, 273, 267, 255, 251, 245, 229, 223, 223, 211, 197, 195, 189, 187, 183, 183, 179, 155, 151, 149, 145, 139, 133, 127, 121, 117, 113, 99, 95, 89, 87, 81, 77, 59, 55, 49, 43, 37, 9, 5

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47.

Solution code: **27.174.204**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27.**

Number of terms: **174**

Number of left terms: **88**

Number of right terms: **86**

**Left terms:**

204, 201, 198, 197, 191, 191, 188, 184, 184, 182, 178, 169, 166, 166, 165, 163, 163, 150, 148, 148, 146, 145, 144, 144, 141, 131, 131, 128, 126, 126, 125, 125, 122, 122, 112, 112, 109, 105, 105, 105, 102, 99, 99, 92, 91, 90, 87, 84, 84, 84, 81, 79, 77, 77, 75, 69, 64, 64, 62, 59, 59, 58, 56, 52, 49, 46, 46, 44, 43, 43, 41, 40, 38, 34, 28, 26, 26, 25, 24, 23, 20, 16, 8, 6, 5, 5, 3, 2

**Right terms:**

203, 203, 196, 196, 194, 190, 189, 186, 183, 177, 176, 174, 172, 168, 162, 156, 155, 155, 154, 153, 149, 142, 139, 137, 136, 136, 136, 134, 133, 121, 121, 121, 117, 117, 115, 114, 114, 113, 104, 101, 100, 100, 96, 94, 93, 89, 89, 86, 83, 80, 80, 76, 76, 74, 74, 72, 70, 68, 67, 57, 54, 54, 54, 53, 50, 48, 48, 47, 45, 39, 36, 35, 35, 33, 33, 31, 30, 27, 27, 15, 15, 15, 14, 13, 7, 1

**Pure product of:**

1, 1, 2, 3, 4, 5, 5, 6, 7, 8, 9, 10, 11, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 26, 27, 29, 31, 37.

Solution code: **28.174.589**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28.**

Number of terms: **174**

Number of left terms: **87**

Number of right terms: **87**

**Left terms:**

589, 579, 575, 557, 545, 543, 539, 537, 535, 531, 505, 503, 501, 499, 499, 495, 487, 485, 473, 467, 455, 451, 447, 443, 441, 437, 435, 411, 409, 399, 397, 393, 391, 379, 357, 353, 351, 321, 319, 307, 287, 281, 275, 263, 261, 257, 255, 249, 243, 229, 225, 223, 219, 217, 217, 211, 191, 185, 185, 181, 179, 173, 169, 167, 155, 153, 141, 133, 129, 127, 123, 115, 101, 97, 91, 83, 79, 75, 69, 65, 59, 39, 37, 33, 27, 25, 7

**Right terms:**

587, 585, 565, 559, 555, 551, 533, 529, 523, 521, 519, 519, 515, 497, 491, 483, 479, 477, 475, 471, 465, 459, 457, 439, 427, 427, 425, 419, 417, 413, 407, 381, 375, 373, 369, 363, 337, 331, 311, 305, 303, 279, 271, 267, 253, 251, 247, 245, 241, 239, 237, 235, 215, 209, 203, 201, 201, 199, 195, 189, 183, 161, 157, 157, 157, 151, 145, 143, 125, 125, 113, 111, 107, 99, 93, 93, 85, 81, 67, 55, 53, 49, 41, 23, 21, 17, 9

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 49.

Solution code: **28.180.309**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28.**

Number of terms: **180**

Number of left terms: **90**

Number of right terms: **90**

**Left terms:**

309, 304, 302, 295, 288, 287, 286, 284, 282, 273, 270, 268, 267, 253, 251, 249, 247, 238, 236, 235, 234, 233, 233, 231, 231, 229, 217, 216, 215, 213, 203, 202, 200, 198, 189, 185, 184, 182, 181, 180, 180, 178, 175, 164, 162, 160, 158, 151, 149, 136, 133, 131, 129, 127, 124, 122, 111, 109, 107, 105, 105, 103, 91, 91, 89, 87, 87, 85, 76, 75, 73, 71, 71, 69, 69, 55, 54, 53, 38, 36, 34, 22, 21, 20, 18, 18, 16, 7, 4, 2

**Right terms:**

308, 307, 297, 294, 294, 292, 280, 279, 278, 276, 275, 274, 259, 257, 248, 246, 243, 243, 241, 241, 239, 228, 227, 226, 225, 225, 223, 223, 221, 210, 205, 197, 195, 193, 192, 191, 190, 188, 179, 177, 174, 172, 170, 169, 168, 163, 161, 148, 141, 139, 137, 134, 130, 121, 117, 116, 115, 114, 112, 112, 99, 98, 97, 95, 88, 86, 84, 81, 81, 79, 70, 68, 66, 65, 64, 63, 61, 46, 45, 42, 29, 28, 19, 17, 15, 14, 13, 9, 3, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47.

Solution code: **28.196.449**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28.**

Number of terms: **196**

Number of left terms: **98**

Number of right terms: **98**

**Left terms:**

449, 443, 437, 435, 423, 423, 417, 409, 409, 405, 397, 379, 373, 373, 371, 367, 365, 337, 337, 337, 333, 331, 331, 329, 329, 311, 303, 303, 303, 295, 293, 293, 265, 265, 265, 257, 251, 251, 245, 239, 239, 237, 231, 231, 231, 225, 225, 223, 209, 201, 199, 195, 195, 191, 187, 187, 179, 167, 165, 161, 159, 159, 159, 159, 153, 151, 145, 145, 133, 129, 125, 123, 119, 99, 93, 93, 93, 91, 89, 81, 73, 73, 67, 67, 65, 59, 55, 53, 53, 49, 29, 25, 21, 19, 13, 13, 13, 11

**Right terms:**

447, 447, 433, 433, 429, 421, 419, 413, 407, 395, 393, 389, 385, 377, 361, 355, 353, 353, 349, 341, 335, 327, 327, 319, 315, 315, 313, 313, 309, 289, 283, 283, 275, 275, 255, 255, 249, 249, 247, 247, 241, 241, 241, 229, 221, 219, 219, 213, 211, 211, 207, 203, 189, 183, 183, 181, 177, 177, 175, 169, 163, 157, 155, 149, 149, 149, 143, 141, 141, 135, 127, 113, 113, 113, 101, 95, 87, 83, 77, 77, 75, 71, 71, 71, 71, 69, 63, 45, 43, 41, 35, 35, 31, 9, 9, 7, 5, 1

**Pure product of:**

1, 1, 2, 3, 4, 5, 5, 6, 7, 8, 9, 10, 11, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 26, 27, 29, 31, 37, 41.

Solution code: **29.172.605**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.**

Number of terms: **172**

Number of left terms: **86**

Number of right terms: **86**

**Left terms:**

605, 595, 591, 569, 561, 555, 553, 551, 547, 543, 517, 517, 515, 511, 505, 503, 503, 503, 501, 467, 467, 463, 463, 461, 459, 459, 453, 449, 415, 413, 411, 411, 409, 409, 407, 403, 401, 373, 369, 367, 365, 359, 357, 323, 315, 297, 289, 279, 277, 273, 237, 235, 235, 233, 229, 223, 221, 197, 193, 189, 187, 185, 185, 185, 183, 183, 179, 171, 149, 145, 145, 143, 141, 135, 131, 95, 95, 91, 91, 77, 77, 55, 51, 41, 5, 1

**Right terms:**

603, 601, 581, 575, 567, 563, 545, 541, 537, 535, 531, 529, 527, 523, 495, 493, 491, 487, 487, 485, 483, 479, 473, 469, 443, 439, 435, 435, 433, 431, 429, 421, 419, 393, 389, 385, 383, 381, 379, 377, 375, 363, 341, 327, 319, 305, 283, 269, 267, 261, 257, 253, 247, 217, 217, 215, 213, 211, 209, 205, 203, 177, 175, 173, 173, 169, 165, 163, 161, 159, 153, 151, 137, 125, 123, 115, 111, 101, 71, 67, 63, 59, 57, 21, 17, 11

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 49.

Solution code: **29.190.669**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.**

Number of terms: **190**

Number of left terms: **96**

Number of right terms: **94**

**Left terms:**

669, 659, 655, 641, 627, 625, 623, 619, 615, 597, 591, 587, 585, 563, 549, 545, 527, 519, 517, 513, 509, 509, 499, 481, 477, 467, 463, 457, 435, 431, 429, 413, 403, 401, 401, 399, 395, 371, 369, 367, 359, 343, 339, 335, 331, 323, 307, 303, 297, 295, 289, 287, 271, 261, 261, 257, 233, 233, 231, 229, 225, 225, 217, 201, 193, 189, 189, 173, 161, 157, 147, 145, 139, 125, 121, 117, 111, 111, 93, 83, 75, 71, 65, 47, 43, 41, 39, 37, 19, 15, 15, 11, 9, 7, 7, 5

**Right terms:**

667, 665, 645, 639, 639, 635, 611, 609, 607, 603, 601, 599, 569, 567, 547, 539, 533, 529, 525, 503, 501, 497, 495, 493, 489, 471, 461, 443, 437, 433, 425, 417, 415, 409, 389, 387, 383, 381, 377, 373, 355, 347, 345, 327, 319, 319, 311, 311, 309, 283, 281, 279, 277, 275, 251, 249, 247, 247, 241, 219, 215, 213, 213, 211, 207, 187, 171, 167, 163, 159, 155, 141, 135, 131, 131, 123, 109, 101, 99, 91, 69, 57, 57, 53, 49, 45, 25, 25, 23, 21, 21, 17, 17, 13

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 51.



Solution code: **29.207.219**

**Powers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.**

Number of terms: **207**

Number of left terms: **98**

Number of right terms: **109**

**Left terms:**

219, 216, 216, 216, 209, 206, 205, 203, 202, 197, 194, 193, 190, 189, 186, 185, 183, 182, 178, 175, 172, 168, 163, 162, 159, 159, 152, 152, 148, 147, 141, 140, 138, 137, 133, 132, 129, 123, 120, 116, 110, 107, 104, 103, 101, 101, 100, 100, 97, 92, 92, 92, 91, 88, 74, 71, 70, 70, 69, 69, 67, 66, 66, 65, 64, 61, 61, 61, 61, 58, 57, 54, 39, 39, 36, 36, 34, 34, 33, 31, 31, 30, 30, 30, 30, 30, 28, 27, 27, 27, 26, 24, 24, 24, 23, 21, 18, 18

**Right terms:**

218, 218, 217, 213, 210, 207, 204, 204, 201, 196, 195, 192, 191, 188, 187, 187, 181, 180, 179, 176, 174, 166, 161, 161, 160, 158, 157, 149, 149, 146, 144, 142, 139, 136, 130, 128, 125, 125, 119, 118, 114, 112, 111, 105, 102, 99, 94, 93, 93, 90, 90, 87, 87, 84, 82, 81, 81, 78, 75, 72, 72, 68, 63, 63, 56, 53, 52, 52, 50, 49, 48, 47, 47, 46, 44, 43, 43, 43, 40, 40, 40, 38, 37, 32, 32, 32, 29, 19, 17, 16, 16, 13, 13, 13, 12, 11, 10, 10, 8, 8, 8, 7, 7, 7, 5, 3, 2, 1, 1

**Pure product of:**

1, 1, 2, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29.

Solution code: **30.208.326**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30.**

Number of terms: **208**

Number of left terms: **104**

Number of right terms: **104**

**Left terms:**

326, 321, 319, 308, 304, 301, 300, 299, 297, 295, 282, 282, 281, 278, 277, 276, 275, 275, 275, 264, 257, 255, 255, 253, 249, 247, 244, 242, 231, 230, 229, 225, 224, 224, 223, 222, 220, 219, 202, 198, 196, 194, 193, 192, 191, 186, 185, 173, 172, 171, 169, 168, 168, 167, 166, 164, 162, 142, 141, 141, 140, 140, 136, 135, 122, 120, 118, 118, 117, 116, 116, 115, 109, 107, 98, 96, 96, 89, 85, 84, 83, 82, 78, 71, 65, 64, 63, 63, 62, 61, 58, 56, 45, 39, 38, 27, 26, 18, 13, 12, 10, 8, 6, 5

**Right terms:**

325, 324, 314, 311, 307, 305, 296, 294, 292, 291, 289, 288, 287, 285, 272, 271, 270, 269, 267, 266, 265, 263, 261, 252, 243, 241, 239, 235, 235, 234, 234, 233, 232, 228, 215, 214, 212, 210, 208, 206, 205, 201, 184, 183, 183, 182, 182, 181, 180, 178, 177, 176, 161, 159, 157, 156, 155, 154, 152, 150, 132, 132, 131, 130, 128, 126, 125, 125, 121, 112, 110, 108, 106, 104, 99, 94, 93, 92, 88, 87, 86, 75, 74, 73, 70, 69, 68, 68, 66, 55, 49, 48, 47, 42, 29, 24, 23, 22, 22, 21, 15, 4, 3, 2

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47, 49.

Solution code: **30.222.683**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30.**

Number of terms: **222**

Number of left terms: **111**

Number of right terms: **111**

**Left terms:**

683, 673, 669, 651, 639, 637, 633, 631, 629, 625, 599, 597, 595, 593, 589, 587, 585, 563, 559, 555, 541, 533, 533, 527, 525, 523, 523, 519, 491, 489, 487, 483, 481, 481, 479, 477, 471, 445, 427, 419, 415, 413, 411, 409, 383, 375, 373, 373, 367, 363, 349, 337, 331, 313, 311, 305, 305, 303, 301, 297, 285, 275, 271, 269, 267, 245, 239, 239, 237, 235, 233, 231, 207, 205, 203, 199, 199, 197, 193, 171, 161, 157, 153, 153, 141, 139, 135, 127, 125, 121, 117, 117, 109, 95, 89, 87, 85, 85, 77, 55, 55, 53, 43, 43, 29, 21, 21, 19, 11, 11, 3

**Right terms:**

681, 679, 659, 653, 649, 645, 627, 623, 617, 615, 613, 613, 609, 583, 583, 581, 573, 571, 561, 549, 547, 543, 539, 535, 517, 509, 507, 505, 503, 503, 499, 495, 485, 485, 467, 463, 453, 451, 439, 431, 421, 399, 397, 391, 389, 387, 387, 387, 361, 355, 333, 329, 325, 325, 325, 323, 293, 293, 291, 289, 289, 283, 281, 273, 261, 257, 255, 229, 227, 225, 221, 219, 219, 217, 211, 211, 185, 181, 179, 177, 175, 169, 155, 147, 145, 143, 137, 133, 123, 115, 113, 111, 105, 103, 97, 83, 71, 71, 69, 67, 63, 59, 39, 37, 35, 31, 27, 27, 5, 5, 1

**Pure product of:**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 51.

Solution code: **30.228.441**

**Powers: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30.**

Number of terms: **228**

Number of left terms: **114**

Number of right terms: **114**

**Left terms:**

441, 435, 435, 433, 433, 431, 421, 413, 405, 399, 397, 389, 389, 381, 381, 373, 373, 371, 371, 359, 359, 357, 349, 345, 339, 329, 329, 327, 321, 319, 313, 311, 307, 307, 299, 297, 295, 289, 285, 285, 283, 269, 269, 267, 257, 249, 247, 247, 235, 235, 233, 223, 221, 219, 209, 205, 203, 195, 187, 187, 187, 185, 185, 171, 161, 159, 151, 143, 143, 141, 141, 141, 141, 133, 133, 125, 125, 125, 123, 123, 117, 101, 93, 91, 85, 81, 81, 77, 77, 73, 71, 71, 71, 63, 63, 63, 63, 61, 61, 55, 55, 39, 31, 23, 21, 13, 13, 11, 11, 11, 3, 1, 1, 1

**Right terms:**

439, 439, 437, 429, 429, 429, 429, 411, 403, 401, 395, 393, 385, 385, 377, 377, 377, 365, 363, 363, 361, 361, 351, 341, 335, 333, 325, 325, 323, 323, 315, 315, 301, 301, 301, 301, 293, 291, 291, 287, 273, 271, 263, 263, 259, 255, 253, 241, 239, 237, 231, 229, 227, 213, 199, 199, 197, 191, 191, 189, 189, 181, 181, 181, 173, 167, 165, 147, 139, 139, 137, 129, 129, 129, 127, 119, 119, 119, 115, 113, 107, 107, 105, 99, 97, 89, 89, 79, 69, 67, 67, 67, 59, 57, 57, 53, 45, 45, 43, 41, 37, 35, 33, 33, 29, 27, 25, 19, 19, 17, 9, 5, 5

**Pure product of:**

1, 1, 2, 2, 3, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29.

## Pure products for powers 31-40

Solution code: **31.226**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 47, 49, 51

Solution code: **32.258**

1, 2, 3, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31

Solution code: **33.252**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 53, 59

Solution code: **34.246**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 59

Solution code: **35.292**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 61

Solution code: **36.326**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 57, 61

Solution code: **37.344**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 61, 67

Solution code: **38.342**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 67

Solution code: **39.388**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 67, 69

Solution code: **40.444**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 67, 69

## Pure products for powers 41-50

Solution code: **41.451**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 67, 73

Solution code: **42.514**

1, 2, 3, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41

Solution code: **43.545**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 71, 77

Solution code: **44.588**

1, 2, 3, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43

Solution code: **45.613**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 71, 77

Solution code: **46.642**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 73, 79

Solution code: **47.696**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 79, 83

Solution code: **48.724**

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 79, 85

Solution code: **49.830**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47

Solution code: **50.872**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

## Pure products for powers 51-58

Solution code: **51.834**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49

Solution code: **52.896**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49

Solution code: **53.958**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50

Solution code: **54.1072**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51

Solution code: **55.1162**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53

Solution code: **56.1206**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54

Solution code: **57.1218**

1, 2, 3, 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55

Solution code: **58.1248**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55

## Pure products for powers 59-66

Solution code: **59.1270**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56

Solution code: **60.1376**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57

Solution code: **61.1517**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58

Solution code: **62.1464**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59

Solution code: **63.1694**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Solution code: **64.1750**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61

Solution code: **65.1866**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62

Solution code: **66.1902**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63



## Pure products for powers 67-74

Solution code: **67.1990**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64

Solution code: **68.1994**

1, 2, 3, 4, 5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65

Solution code: **69.2120**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65

Solution code: **70.2224**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66

Solution code: **71.2372**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67

Solution code: **72.2618**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68

Solution code: **73.2947**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69

Solution code: **74.2906**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70

# Pure products for powers 75-81

Solution code: **75.2902**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71

Solution code: **76.2822**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72

Solution code: **77.2853**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73

Solution code: **78.3150**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73

Solution code: **79.3386**

1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75

Solution code: **80.3604**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75

Solution code: **81.3903**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76

## Pure products for powers 82-88

Solution code: **82.4136**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77

Solution code: **83.4502**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78

Solution code: **84.4542**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79

Solution code: **85.4451**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80

Solution code: **86.4238**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81

Solution code: **87.4426**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82

Solution code: **88.4518**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83

## Pure products for powers 89-94

Solution code: **89.5154**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84

Solution code: **90.5476**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85

Solution code: **91.6162**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86

Solution code: **92.6636**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86

Solution code: **93.6705**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88

Solution code: **94.6764**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89

## Pure products for powers 95-100

Solution code: **95.6846**

1, 2, 3, 4, 5, 6, 7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Solution code: **96.6422**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90

Solution code: **97.6629**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91

Solution code: **98.7436**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92

Solution code: **99.7986**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93

Solution code: **100.8340**

1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94