EINDHOVEN UNIVERSITY OF TECHNOLOGY

Department of Mathematics and Computing Science

Catalogue of Simple Perfect Squared Squares

of orders 21 through 25

by

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Introduction

A perfect squared square of order n is a square dissected into a finite number n of squares no two of which are of equal size. It is called compound if it contains a subset of component squares, more than one and less than all, arranged in a rectangle or a square. If it does not contain such subset it is called simple.

The very first Simple Perfect Squared Square of this Catalogue was discovered by computer in March, 1978, by Duijvestijn. It has the lowest possible order, $n = 21$, and it is the only one of that order. In July of the same year, Duijvestijn found two simple perfect squared squares of order 22. After communicating these to P.J. Federico of Washington, D.C., U.S.A., who informed T.H. Willcocks of Bristol, U.K., the latter found a third simple perfect squared square of order 22 about August 1978.

After Duijvestijn's proof in 1962 that there were no simple perfect squared squares of order less than 21, another computer attack, by J.C. Wilson of Waterloo, Canada, in his thesis of 1967, resulted in twenty-nine low-order simple perfect squared squares, five of order 25 and twenty-four of order 26.

By certain transformation techniques, Federico and Willcocks were able to add three simple perfect squared squares of order 25 to the stock, not to mention their four and seven of orders 26 and 27, respectively.

Then, in 1990, Duijvestijn decided to start all over again when computer power had tremendously grown compared to that of the sixties. He first found eight simple perfect squared squares of order 22, including his earlier two. Secondly, he found twelve of order 23 and twenty-six of order 24, making the total number of simple perfect squared squares of order less than 25 equal to forty-seven. From the order-22 results sent to J.D. Skinner, II, of Lincoln, Nebraska, U.S.A., two simple perfect squared squares of order 23 were derived by Skinner even before these were detected in the output of Duijvestijn's computer(s). The same happened, when Bouwkamp found two simple perfect squared squares of order 24 from Duijvestijn's order-23 results even before the order-23 run was completed.

In 1991 Duijvestijn started with order 25 and at the end of March, 1992, the unexpectedly large number of 160 simple perfect squared squares of order 25 were there, of which only very few had been discovered before by transform techniques by Federico, Willcocks, Skinner, and Bouwkamp.

The Catalogue contains 207 simple perfect squared squares of which 182 were found by Duijvestijn, 13 by Bouwkamp, 5 by Wilson, 3 by Federico, 3 by Skinner, and 1 by Willcocks for the first time.

Our thanks are due to F.H. Simons of the Department for providing us with the originals of the pages that follow. This Catalogue is rather an Album of Squared Squares, the creation of which was hoped for by Federico after we had demonstrated automatic drawing by computer and plotter of the squared squares just found by Wilson.

Eindhoven, November 1, 1992

Order: 21

Reduced side: 112

Elements: 2, 4, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 24, 25, 27, 29, 33, 35, 37, 42, 50

Code: (50, 35, 27) (8, 19) (15, 17, 11) (6, 24) (29, 25, 9, 2) (7, 18) (16) (42) (4, 37)
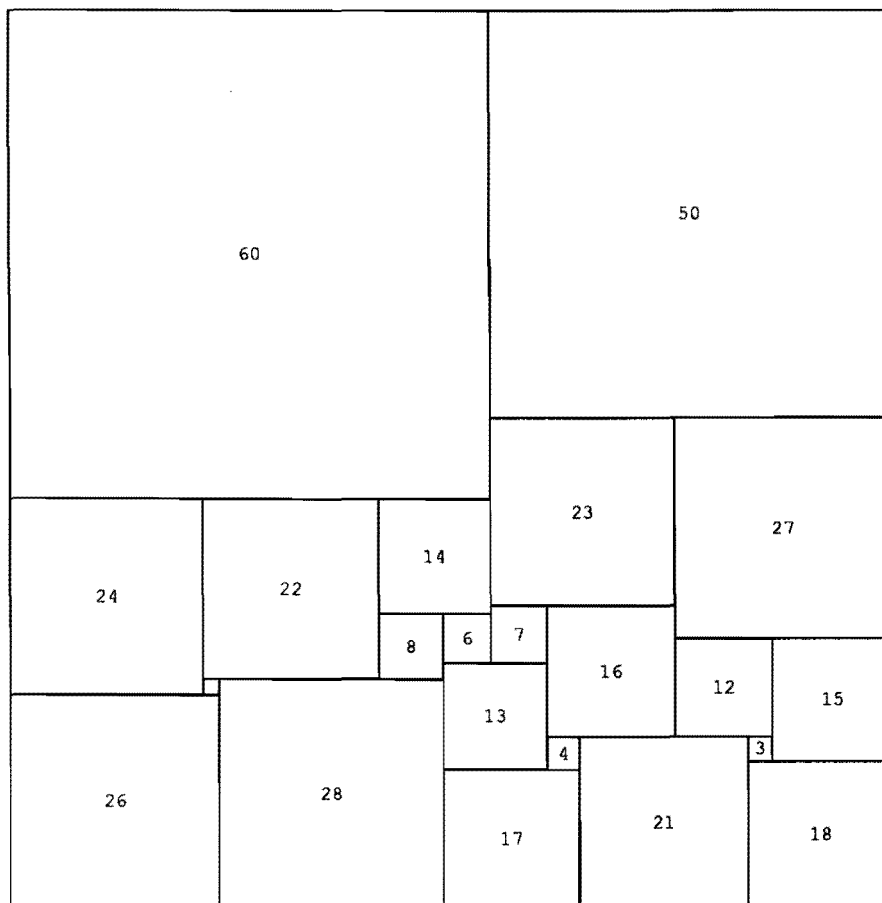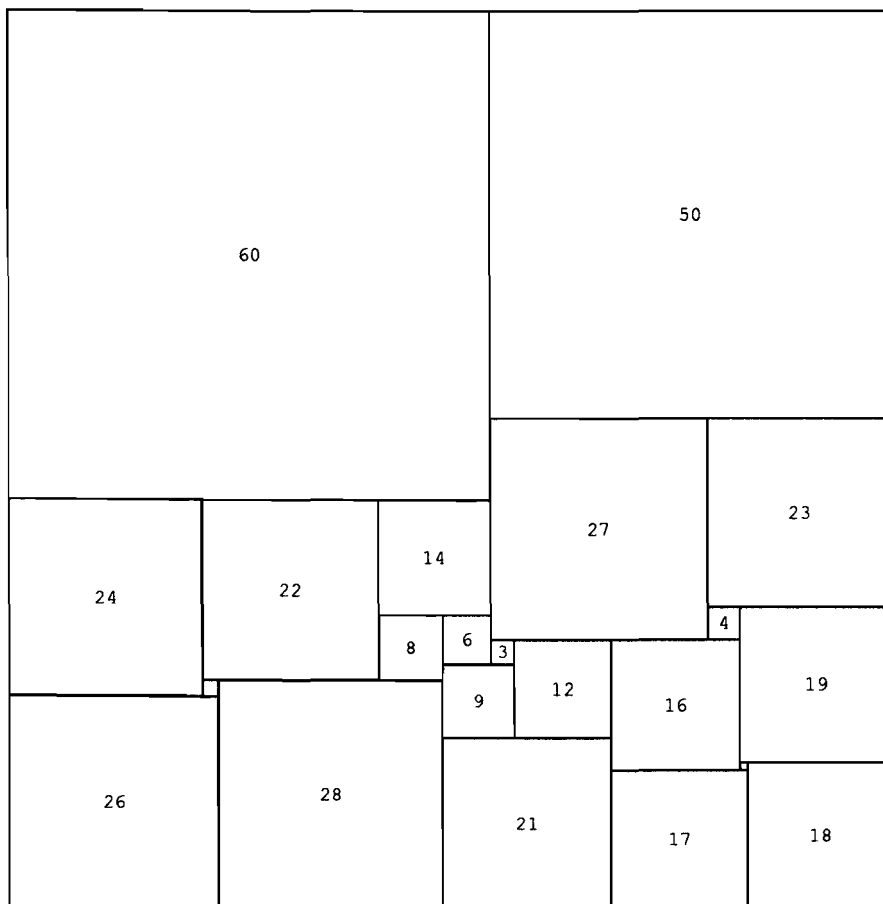   (33)

Order: 22

Reduced side: 110

Elements: 2, 3, 4, 6, 7, 8, 12, 13, 14, 15, 16, 17, 18, 21, 22, 23, 24, 26, 27, 28, 50, 60

Code: (60, 50) (23, 27) (24, 22, 14) (7, 16) (8, 6) (12, 15) (13) (2, 28) (26) (4, 21, 3) (18) (17)

Order: 22

Reduced side: 110

Elements: 1, 2, 3, 4, 6, 8, 9, 12, 14, 16, 17, 18, 19, 21, 22, 23, 24, 26, 27, 28, 50, 60

Code: (60, 50) (27, 23) (24, 22, 14) (4, 19) (8, 6) (3, 12, 16) (9) (2, 28) (26) (21) (1, 18) (17)

Order: 22

Reduced side: 139

Elements: 1, 2, 3, 4, 7, 8, 10, 17, 18, 20, 21, 22, 24, 27, 28, 29, 30, 31, 32, 38, 59, 80

Code: (80, 59) (21, 38) (29, 28, 17, 27) (7, 10) (18, 20) (4, 3) (32, 8) (1, 31) (30) (24, 2) (22)

Order: 22

Reduced side: 147

Elements: 1, 3, 4, 5, 8, 9, 17, 20, 21, 23, 25, 26, 29, 31, 32, 40, 43, 44, 47, 48, 52, 55

Code: (55, 44, 48) (40, 4) (52) (26, 29) (23, 3) (20, 31, 21) (5, 47) (43) (9, 17) (1, 8) (32) (25)

Order: 22

Reduced side: 147

Elements: 2, 4, 8, 10, 11, 12, 15, 19, 21, 22, 23, 25, 26, 32, 34, 37, 41, 43, 45, 47, 55, 59

Code: (59, 43, 45) (41, 2) (47) (34, 25) (21, 37, 8) (55) (22, 12) (10, 23) (32) (11, 26) (19, 4) (15)

Order: 22

Reduced side: 154

Elements: 2, 5, 9, 11, 16, 17, 19, 21, 22, 24, 26, 30, 31, 33, 35, 36, 41, 46, 47, 50, 52, 61

Code: (61, 52, 41) (11, 30) (9, 35, 19) (46, 24) (16, 33) (22, 2) (36, 17) (50) (47, 21) (5, 31) (26)

Order: 22

Reduced side: 172

Elements: 1, 2, 3, 4, 9, 11, 13, 16, 17, 18, 19, 22, 24, 33, 36, 38, 39, 42, 44, 53, 75, 97

Code: (97, 75) (22, 53) (39, 42, 38) (9, 44) (4, 19, 13, 2) (36, 3) (11) (33, 16) (24) (1, 18) (17)

Order: 22

Reduced side: 192

Elements: 4, 8, 9, 10, 12, 14, 17, 19, 26, 28, 31, 35, 36, 37, 41, 47, 49, 57, 59, 62, 71, 86

Code: (86, 49, 57) (41, 8) (28, 37) (19, 9) (47, 35, 4) (31, 14) (10, 36) (17, 26) (12, 71) (62) (59)

Order: 23

Reduced side: 110

Elements: 1, 2, 3, 4, 5, 7, 8, 10, 12, 13, 14, 15, 16, 19, 21, 28, 29, 31, 32, 37, 38, 41, 44

Code: (44, 29, 37) (21, 8) (13, 32) (28, 16) (15, 19) (12, 4) (3, 1) (2, 14) (5) (10, 41) (38, 7) (31)

Order: 23

Reduced side: 139

Elements: 1, 2, 7, 8, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 24, 26, 27, 28, 32, 33, 38, 59, 80

Code: (80, 59) (21, 38) (26, 19, 15, 14, 27) (1, 13) (16) (18, 20) (7, 12) (33) (32, 8) (28) (24, 2) (22)

Order: 23

Reduced side: 140

Elements: 1, 2, 3, 4, 5, 8, 10, 13, 16, 19, 20, 23, 27, 28, 29, 31, 33, 38, 42, 45, 48, 53, 54

Code: (54, 38, 48) (28, 10) (31, 27) (33, 13, 8) (5, 3) (2, 1) (29) (20) (4, 23) (16, 19) (53) (45) (42)

Order: 23

Reduced side: 140

Elements: 2, 3, 4, 7, 8, 9, 12, 15, 16, 18, 22, 23, 24, 26, 28, 30, 33, 36, 43, 44, 47, 50, 60

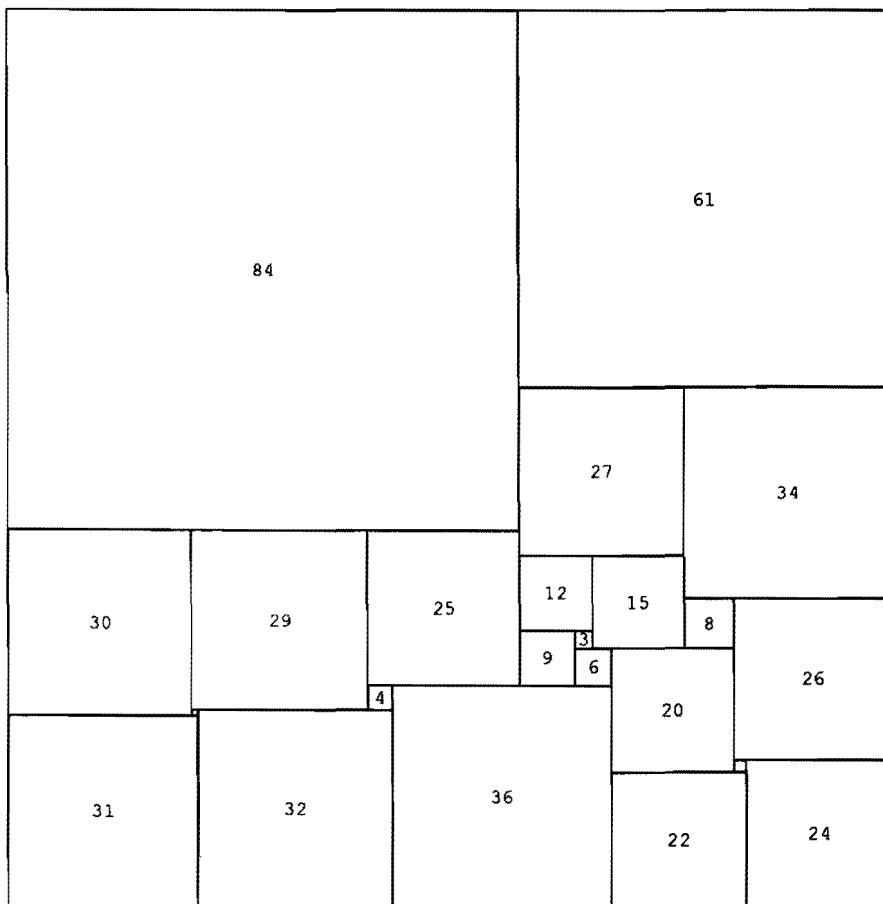Code: (60, 44, 36) (8, 28) (30, 22) (33, 15, 12) (2, 26) (24) (3, 9) (7, 23) (18) (16) (50) (47, 4) (43)

Order: 23

Reduced side: 145

Elements: 1, 2, 3, 4, 6, 8, 9, 12, 15, 20, 22, 24, 25, 26, 27, 29, 30, 31, 32, 34, 36, 61, 84

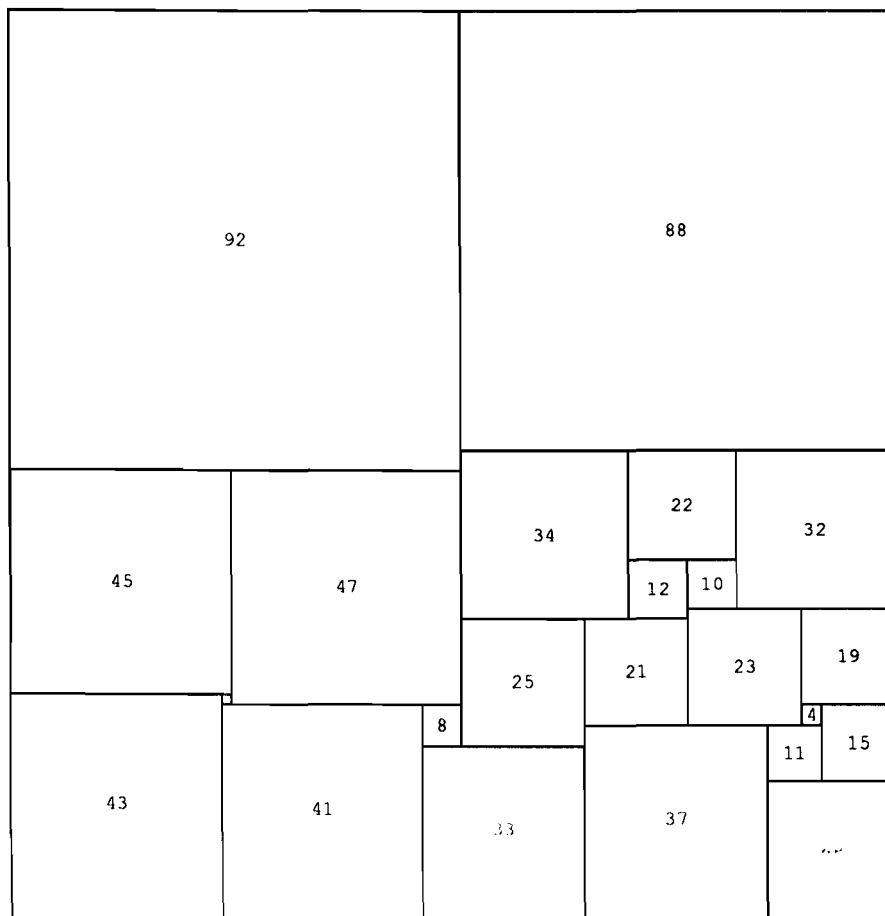Code: (84, 61) (27, 34) (30, 29, 25) (12, 15) (8, 26) (9, 3) (6, 20) (4, 36) (1, 32) (31) (2, 24) (22)

Order: 23

Reduced side: 180

Elements: 2, 4, 8, 10, 11, 12, 15, 19, 21, 22, 23, 25, 26, 32, 33, 34, 37, 41, 43, 45, 47, 88, 92

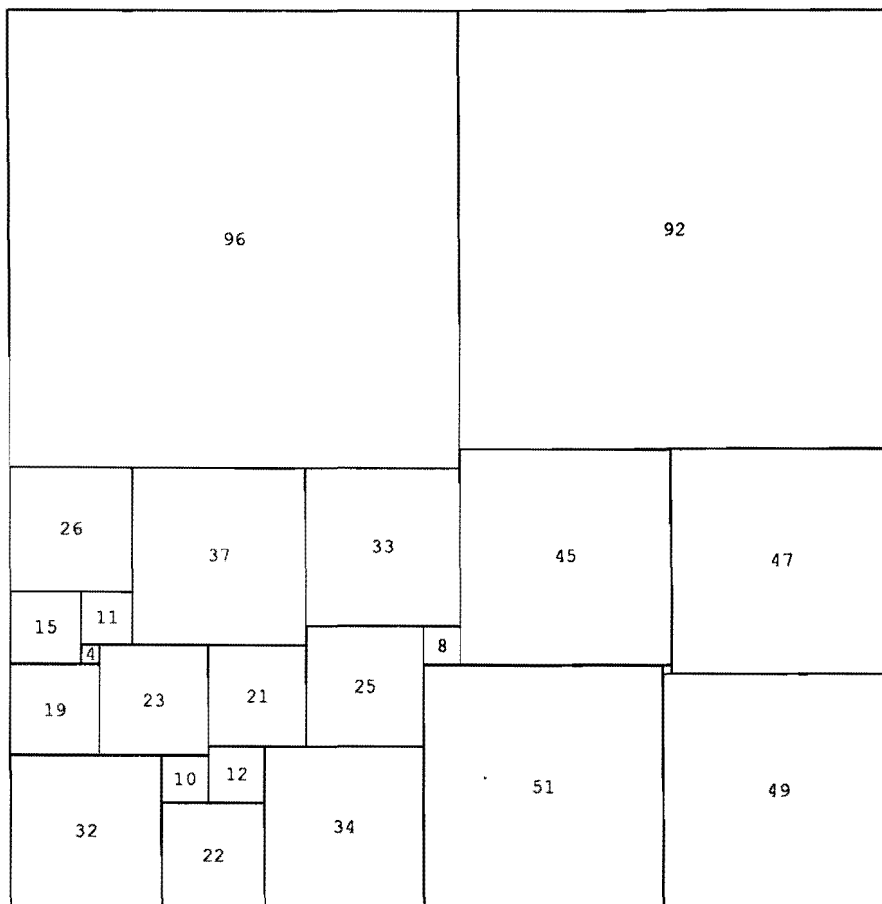Code: (92, 88) (34, 22, 32) (45, 47) (12, 10) (23, 19) (25, 21) (43, 2) (41, 8) (4, 15) (37, 11) (33) (26)

Order: 23

Reduced side: 188

Elements: 2, 4, 8, 10, 11, 12, 15, 19, 21, 22, 23, 25, 26, 32, 33, 34, 37, 45, 47, 49, 51, 92, 96

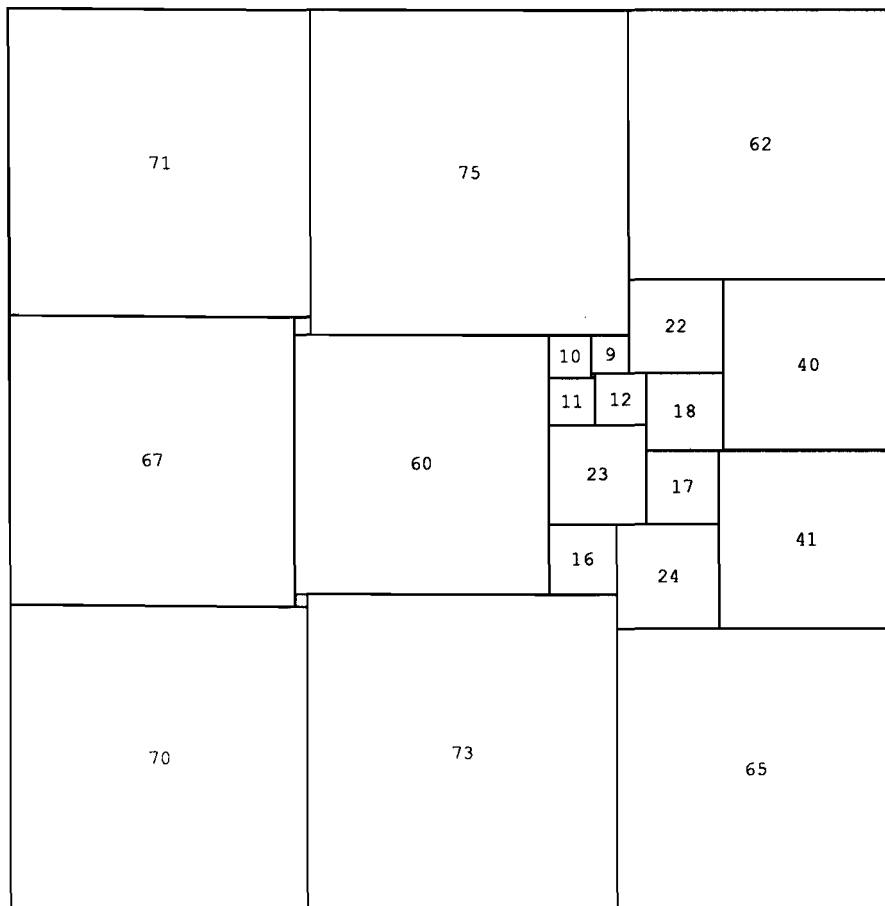Code: (96, 92) (45, 47) (26, 37, 33) (15, 11) (25, 8) (4, 23, 21) (19) (51, 2) (49) (12, 34) (32, 10) (22)
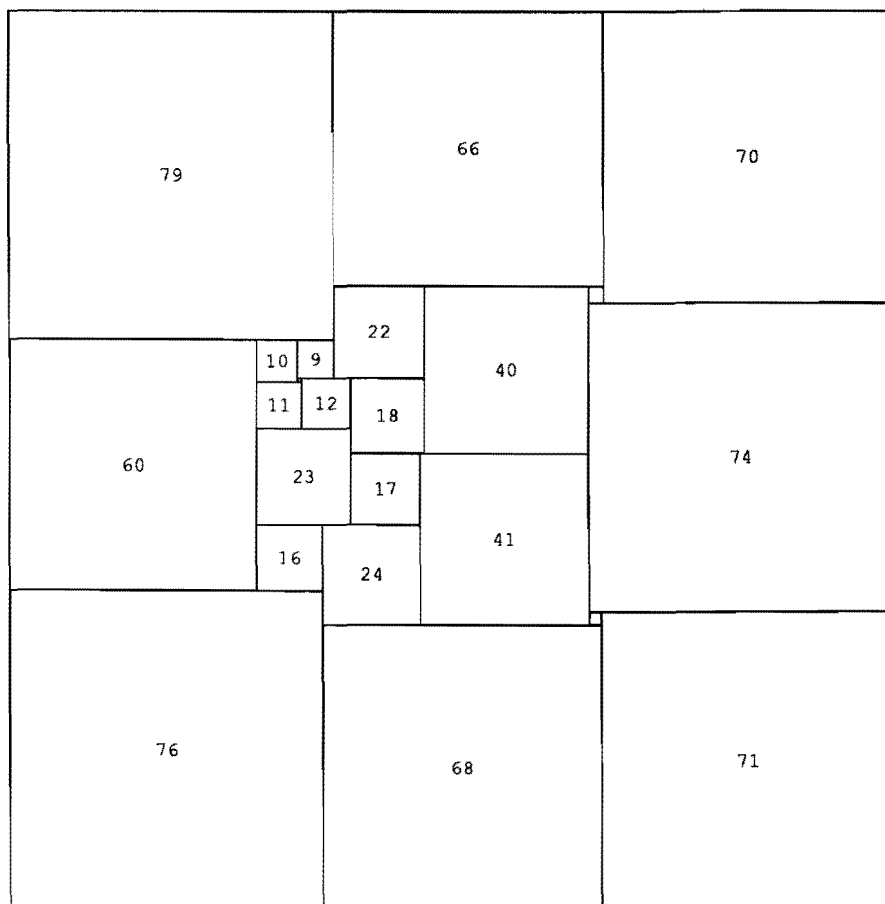
Order: 23

Reduced side: 208

Elements: 1, 3, 4, 9, 10, 11, 12, 16, 17, 18, 22, 23, 24, 40, 41, 60, 62, 65, 67, 70, 71, 73, 75

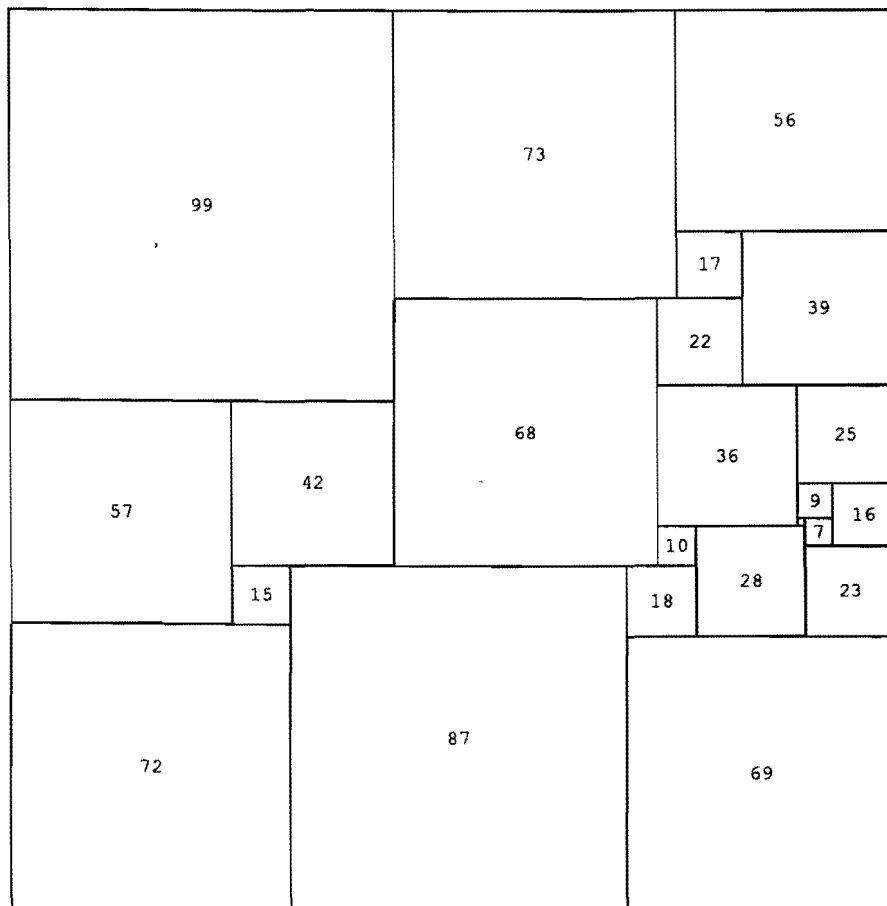Code: (71, 75, 62) (22, 40) (67, 4) (60, 10, 9) (1, 12, 18) (11) (23) (17, 41) (16, 24) (3, 73) (70) (65)

Order: 23

Reduced side: 215

Elements: 1, 3, 4, 9, 10, 11, 12, 16, 17, 18, 22, 23, 24, 40, 41, 60, 66, 68, 70, 71, 74, 76, 79

Code: (79, 66, 70) (22, 40, 4) (74) (60, 10, 9) (1, 12, 18) (11) (23) (17, 41) (16, 24) (76) (3, 71) (68)

Order: 23

Reduced side: 228

Elements: 2, 7, 9, 10, 15, 16, 17, 18, 22, 23, 25, 28, 36, 39, 42, 56, 57, 68, 69, 72, 73, 87, 99

Code: (99, 73, 56) (17, 39) (68, 22) (36, 25) (57, 42) (9, 16) (2, 7) (10, 28) (23) (15, 87, 18) (72) (69)

Order: 23

Reduced side: 257

Elements: 2, 3, 9, 11, 14, 15, 17, 20, 22, 24, 28, 29, 32, 33, 49, 55, 57, 60, 63, 66, 79, 123, 134

Code: (134, 123) (11, 24, 33, 55) (60, 57, 28) (15, 9) (20, 22) (29, 14) (32, 2) (79) (3, 66, 17) (63) (49)

Order: 23

Reduced side: 332

Elements: 1, 15, 17, 24, 26, 30, 31, 38, 47, 48, 49, 50, 53, 56, 58, 68, 83, 89, 91, 112, 120, 123, 129

Code: (123, 89, 120) (58, 31) (83, 68) (49, 50, 24) (26, 56) (48, 1) (47, 30) (15, 53) (17, 129, 38) (112) (91)

Order: 24

Reduced side: 120

Elements: 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 19, 20, 23, 25, 32, 33, 34, 40, 41, 46, 47

Code: (47, 32, 41) (15, 17) (8, 33) (19, 20, 23) (25) (14, 5) (4, 13, 3) (10, 16) (9) (12, 46) (40, 6) (34)

Order: 24

Reduced side: 186

Elements: 2, 3, 4, 7, 8, 9, 12, 15, 16, 18, 22, 23, 24, 26, 28, 30, 33, 36, 43, 46, 47, 60, 90, 96

Code: (96, 90) (36, 28, 26) (43, 23, 30) (2, 24) (8, 22) (16, 7) (9, 12, 60) (4, 18, 3) (15) (47) (46) (33)

Order: 24

Reduced side: 194

Elements: 2, 3, 7, 9, 10, 16, 17, 18, 19, 20, 23, 25, 28, 34, 36, 37, 42, 53, 54, 61, 65, 68, 69, 72

Code: (72, 54, 68) (37, 17) (3, 65) (20) (53, 19) (34, 42) (69, 18) (10, 36, 61) (28) (2, 9, 25) (23, 7) (16)

Order: 24

Reduced side: 195

Elements: 2, 4, 7, 10, 11, 16, 17, 18, 21, 26, 27, 30, 39, 41, 42, 45, 47, 49, 52, 53, 54, 61, 63, 80

Code: (80, 63, 52) (11, 41) (17, 27, 30) (61, 26, 10) (16, 21) (18, 53) (42) (39) (54, 7) (4, 49) (47, 2) (45)
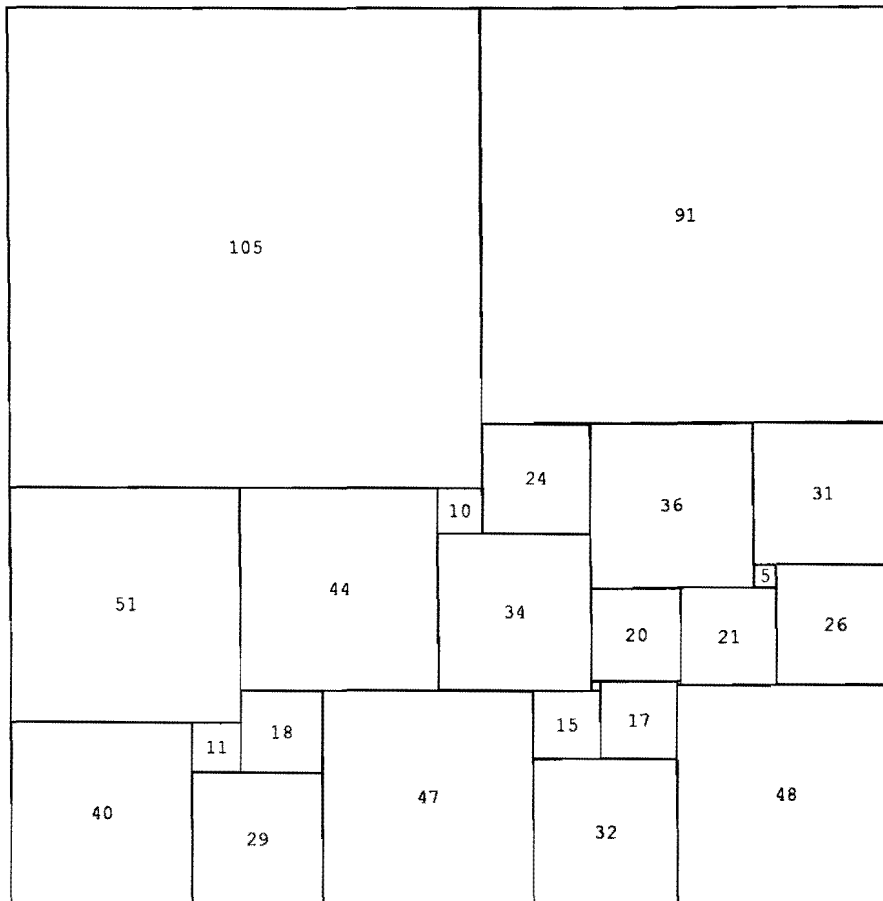
Order: 24

Reduced side: 196

Elements: 1, 2, 5, 10, 11, 15, 17, 18, 20, 21, 24, 26, 29, 31, 32, 34, 36, 40, 44, 47, 48, 51, 91, 105

Code: (105, 91) (24, 36, 31) (51, 44, 10) (34) (5, 26) (20, 21) (2, 17, 1) (48) (18, 47, 15) (40, 11) (32) (29)
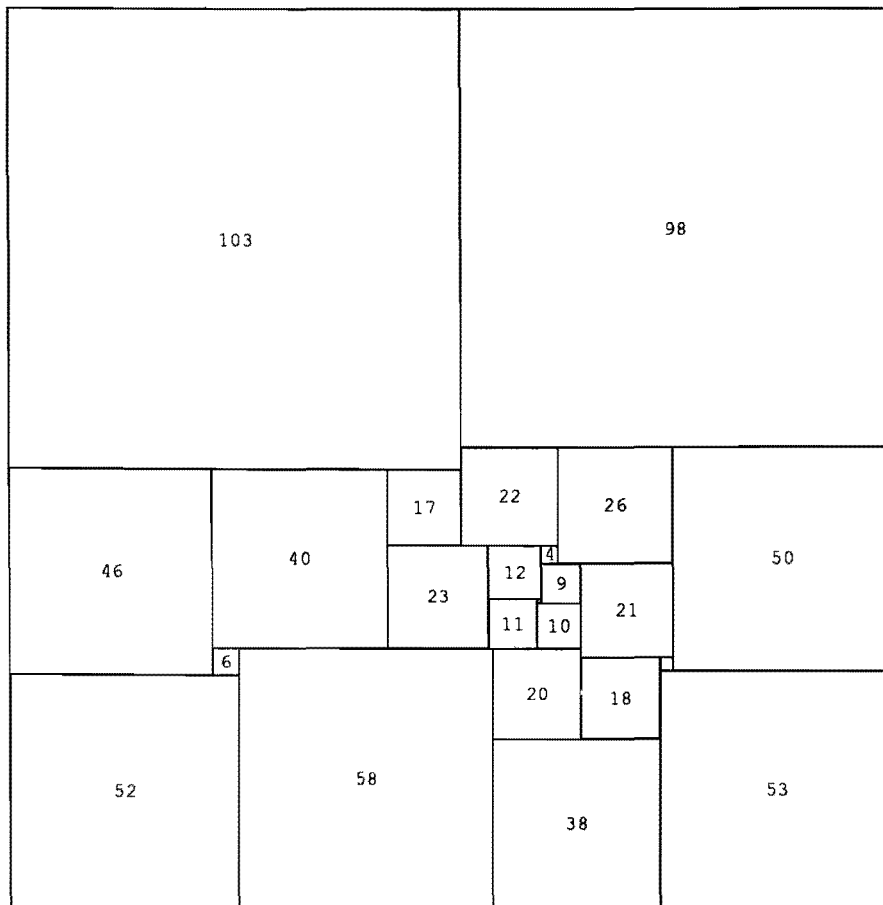
Order: 24

Reduced side: 201

Elements: 1, 3, 4, 6, 9, 10, 11, 12, 17, 18, 20, 21, 22, 23, 26, 38, 40, 46, 50, 52, 53, 58, 98, 103

Code: (103, 98) (22, 26, 50) (46, 40, 17) (23, 12, 4) (9, 21) (11, 1) (10) (6, 58, 20) (18, 3) (53) (52) (38)
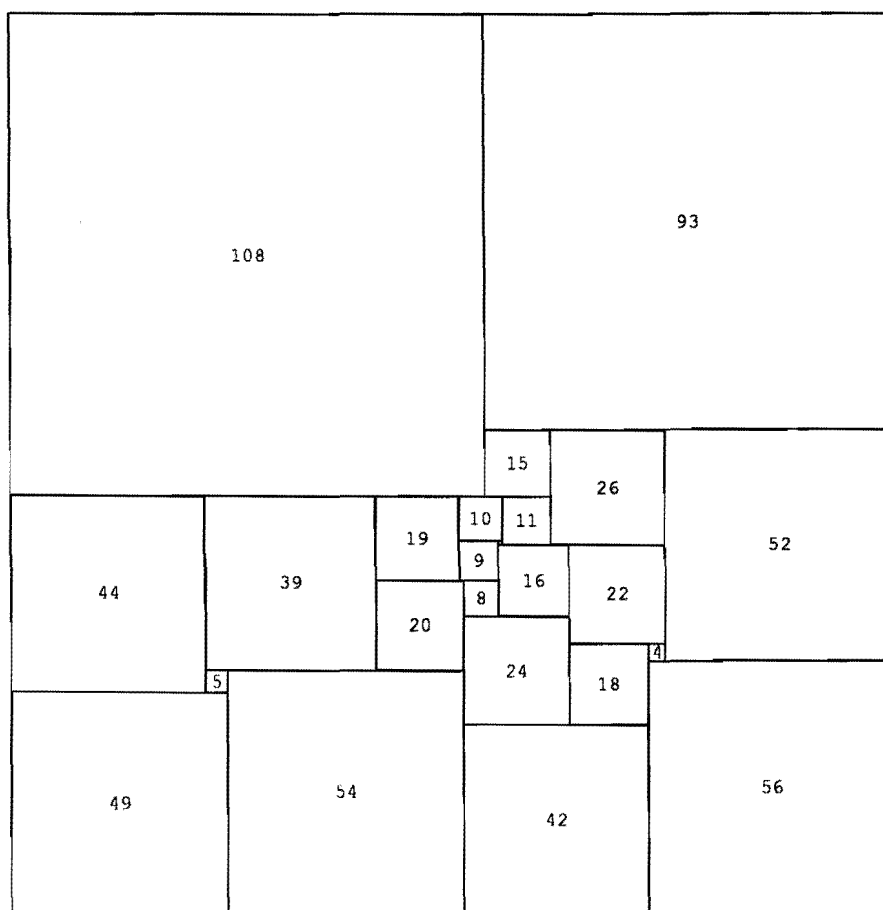
Order: 24

Reduced side: 201

Elements: 1, 4, 5, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 24, 26, 39, 42, 44, 49, 52, 54, 56, 93, 108

Code: (108, 93) (15, 26, 52) (44, 39, 19, 10, 11) (9, 1) (16, 22) (20, 8) (24) (18, 4) (56) (5, 54) (49) (42)
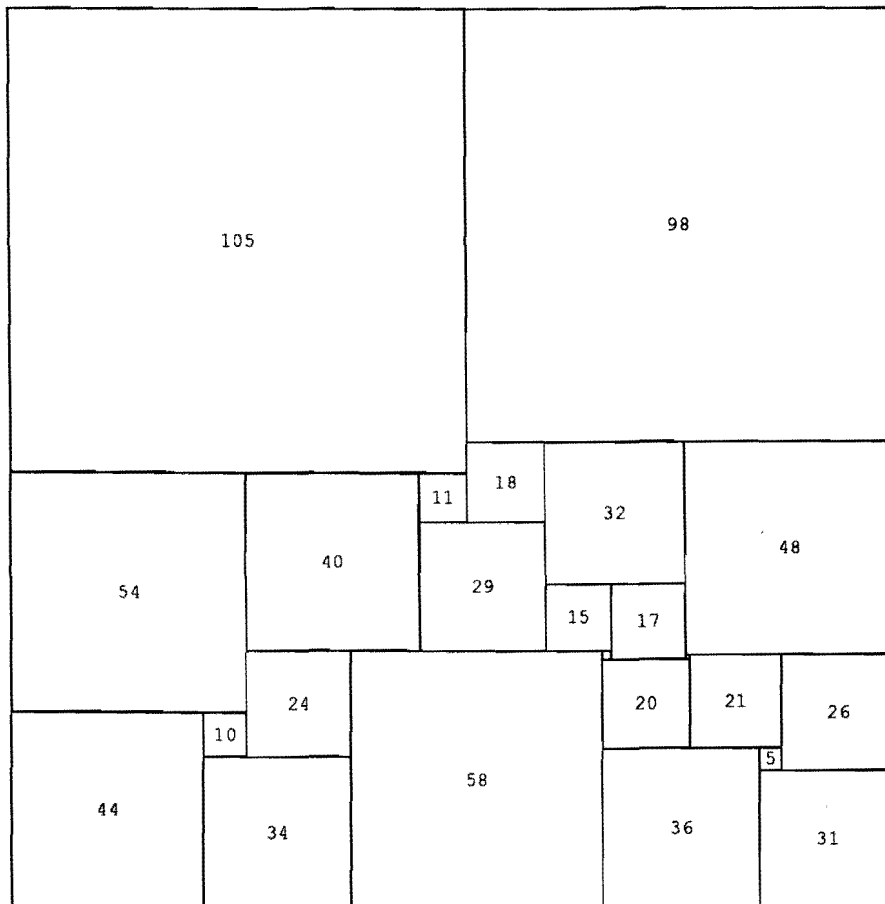
Order: 24

Reduced side: 203

Elements: 1, 2, 5, 10, 11, 15, 17, 18, 20, 21, 24, 26, 29, 31, 32, 34, 36, 40, 44, 48, 54, 58, 98, 105

Code: (105, 98) (18, 32, 48) (54, 40, 11) (29) (15, 17) (24, 58, 2) (1, 21, 26) (20) (44, 10) (36, 5) (34) (31)
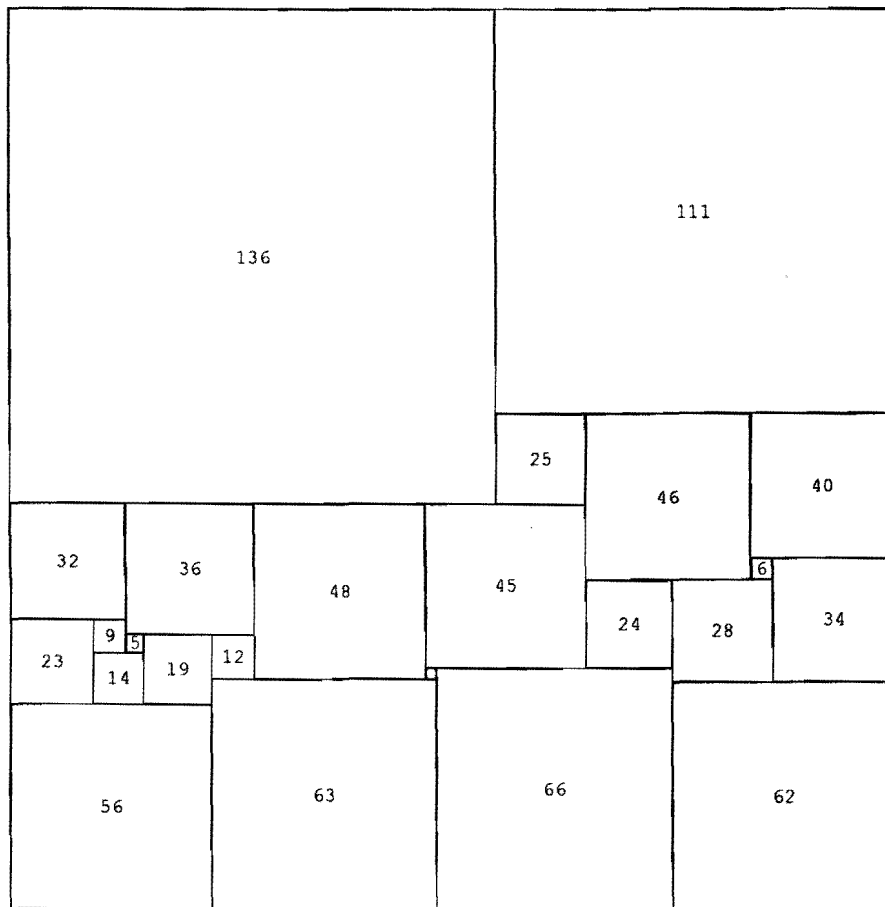
Order: 24

Reduced side: 247

Elements: 3, 5, 6, 9, 12, 14, 19, 23, 24, 25, 28, 32, 34, 36, 40, 45, 46, 48, 56, 62, 63, 66, 111, 136

Code: (136, 111) (25, 46, 40) (32, 36, 48, 45) (6, 34) (24, 28) (23, 9) (5, 19, 12) (14) (3, 66) (63) (62) (56)
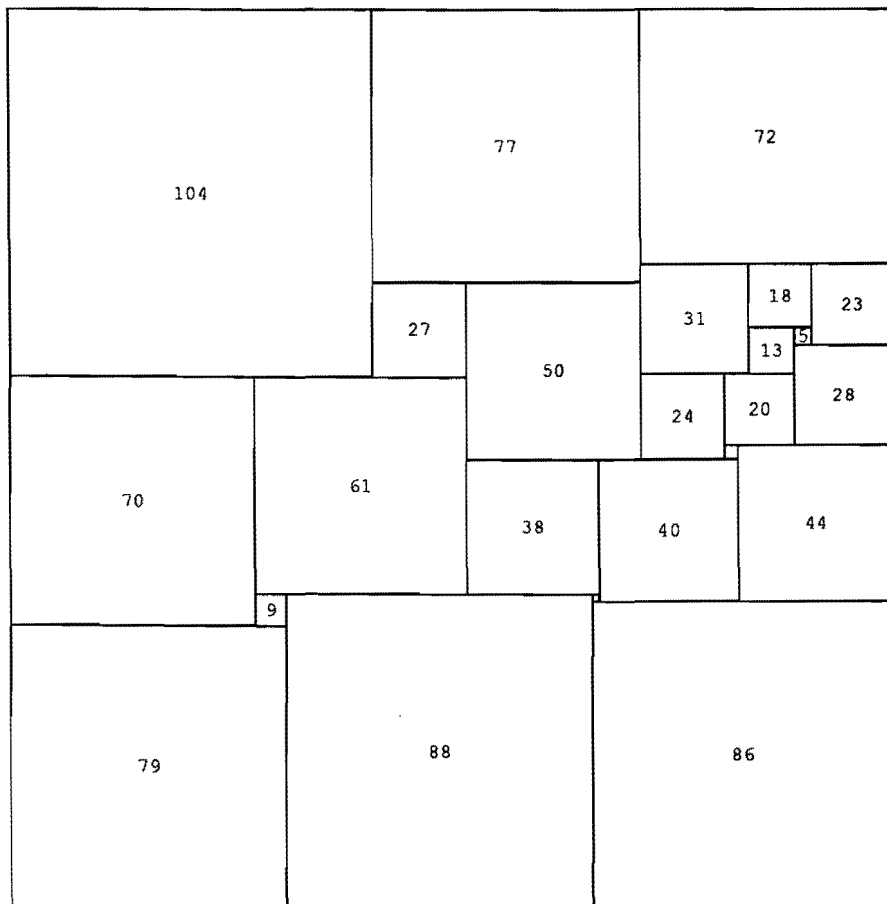
Order: 24

Reduced side: 253

Elements: 2, 4, 5, 9, 13, 18, 20, 23, 24, 27, 28, 31, 38, 40, 44, 50, 61, 70, 72, 77, 79, 86,
                 88, 104

Code: (104, 77, 72) (31, 18, 23) (27, 50) (13, 5) (28) (24, 20) (70, 61) (4, 44) (38,
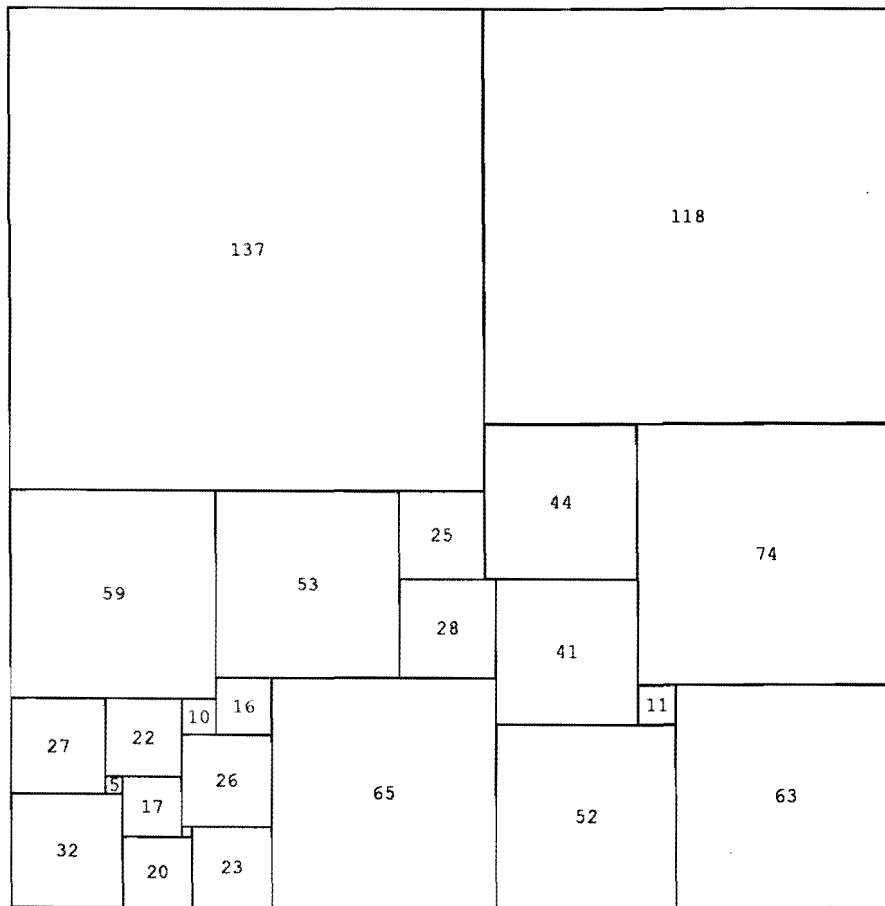   40) (9, 88, 2) (86) (79)

Order: 24

Reduced side: 255

Elements: 3, 5, 10, 11, 16, 17, 20, 22, 23, 25, 26, 27, 28, 32, 41, 44, 52, 53, 59, 63, 65, 74, 118, 137

Code: (137, 118) (44, 74) (59, 53, 25) (28, 41) (16, 65) (11, 63) (27, 22, 10) (52) (26) (5, 17) (32) (3, 23) (20)
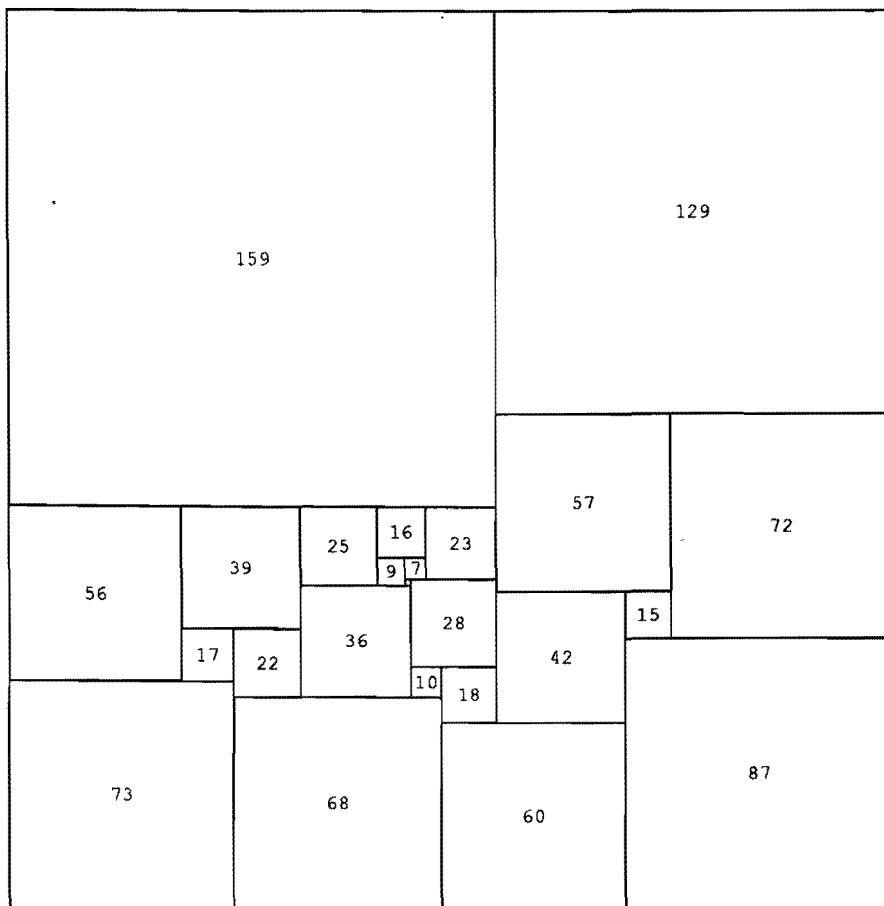
Order: 24

Reduced side: 288

Elements: 2, 7, 9, 10, 15, 16, 17, 18, 22, 23, 25, 28, 36, 39, 42, 56, 57, 60, 68, 72, 73, 87, 129, 159

Code: (159, 129) (57, 72) (56, 39, 25, 16, 23) (9, 7) (2, 28) (36) (42, 15) (17, 22) (87) (10, 18) (73) (68) (60)
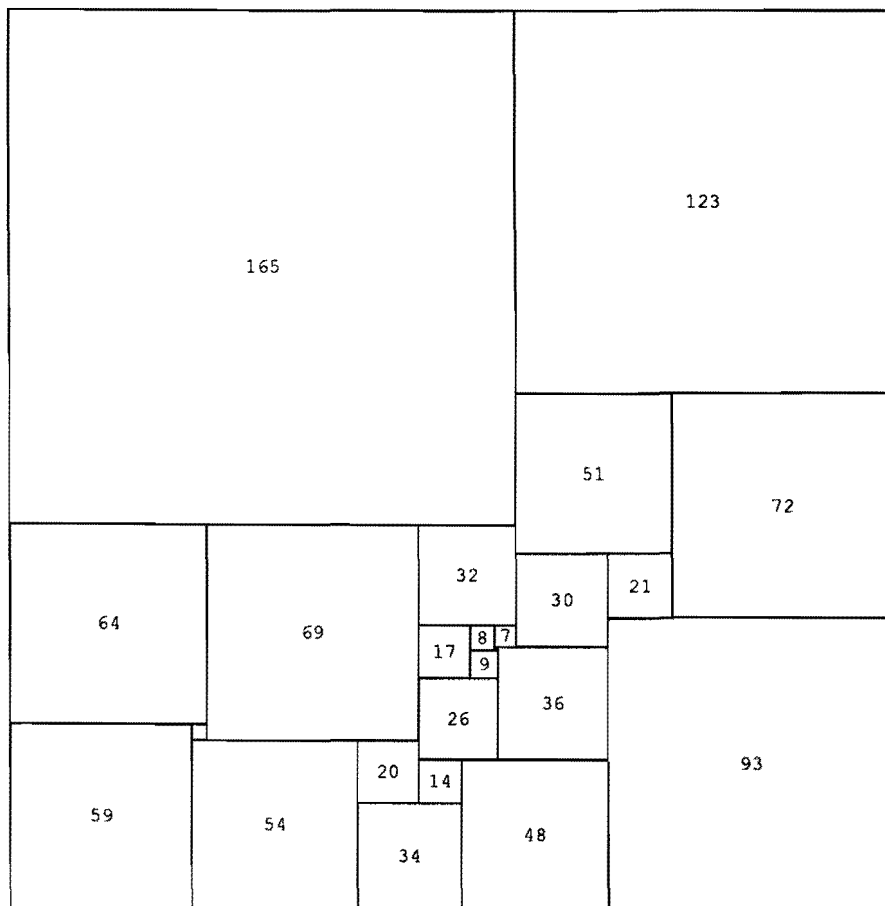
Order: 24

Reduced side: 288

Elements: 1, 5, 7, 8, 9, 14, 17, 20, 21, 26, 30, 32, 34, 36, 48, 51, 54, 59, 64, 69, 72, 93,
                123, 165

Code: (165, 123) (51, 72) (64, 69, 32) (30, 21) (93) (17, 8, 7) (1, 36) (9) (26) (59,
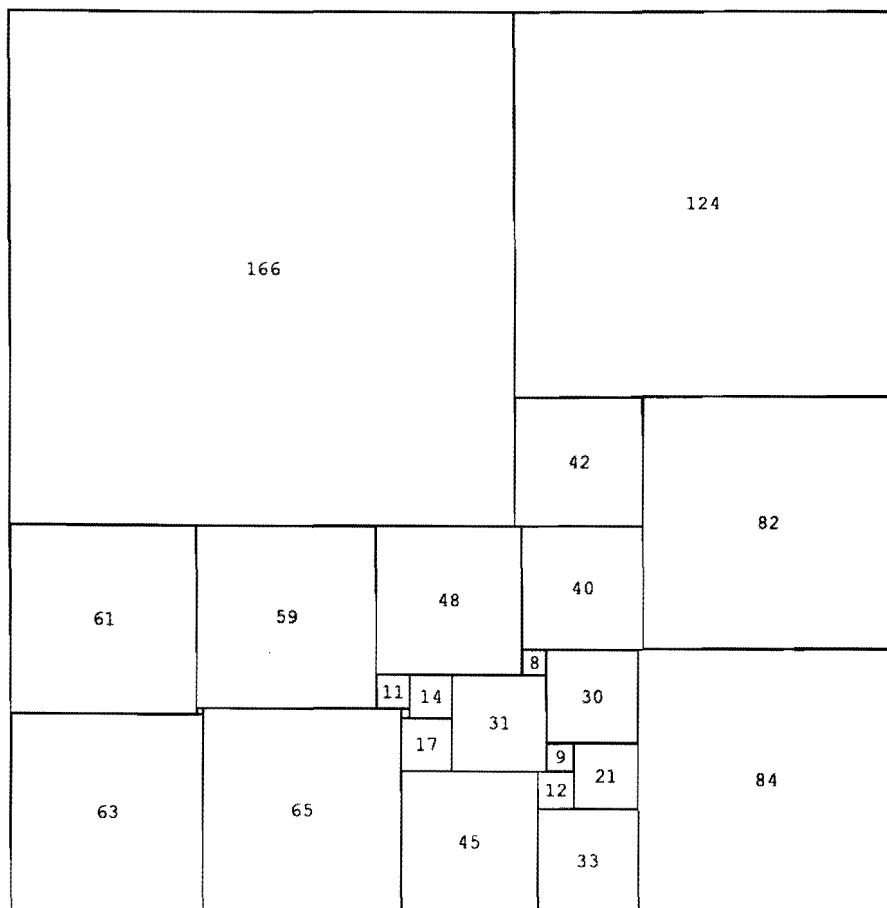   5) (54, 20) (14, 48) (34)

Order: 24

Reduced side: 290

Elements: 2, 3, 8, 9, 11, 12, 14, 17, 21, 30, 31, 33, 40, 42, 45, 48, 59, 61, 63, 65, 82, 84, 124, 166

Code: (166, 124) (42, 82) (61, 59, 48, 40) (8, 30, 84) (11, 14, 31) (2, 65, 3) (63) (17) (9, 21) (45, 12) (33)
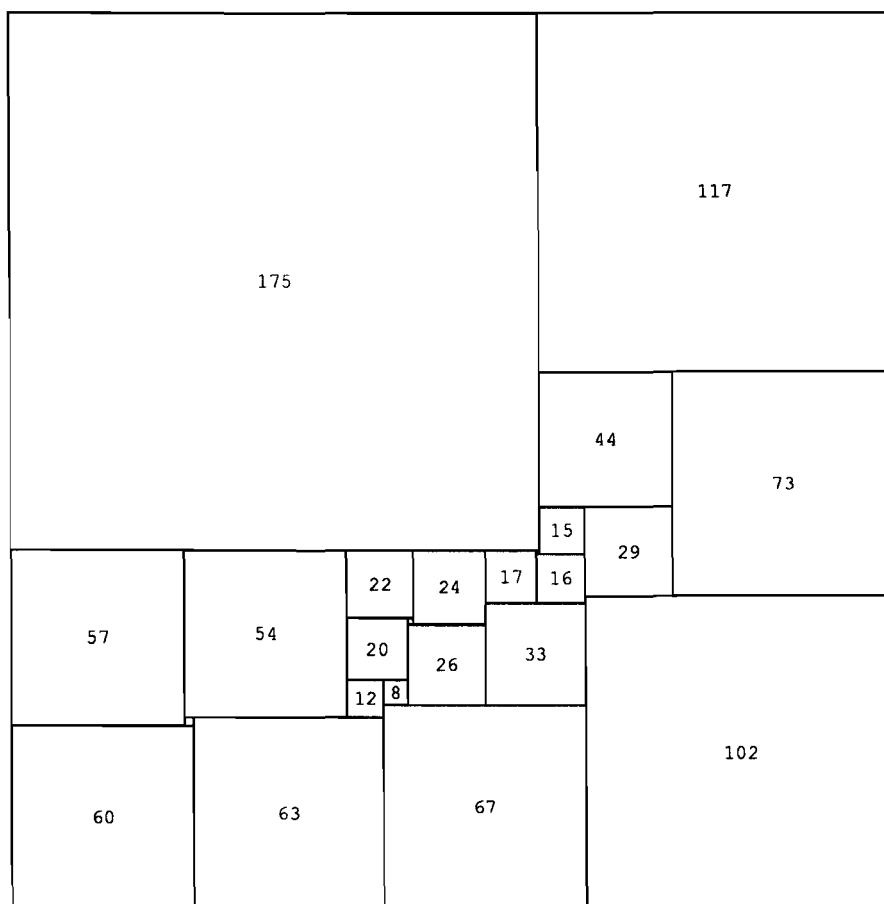
Order: 24

Reduced side: 292

Elements: 1, 2, 3, 8, 12, 15, 16, 17, 20, 22, 24, 26, 29, 33, 44, 54, 57, 60, 63, 67, 73, 102,
                 117, 175

Code: (175, 117) (44, 73) (15, 29) (57, 54, 22, 24, 17, 1) (16) (102) (33) (20, 2) (26)
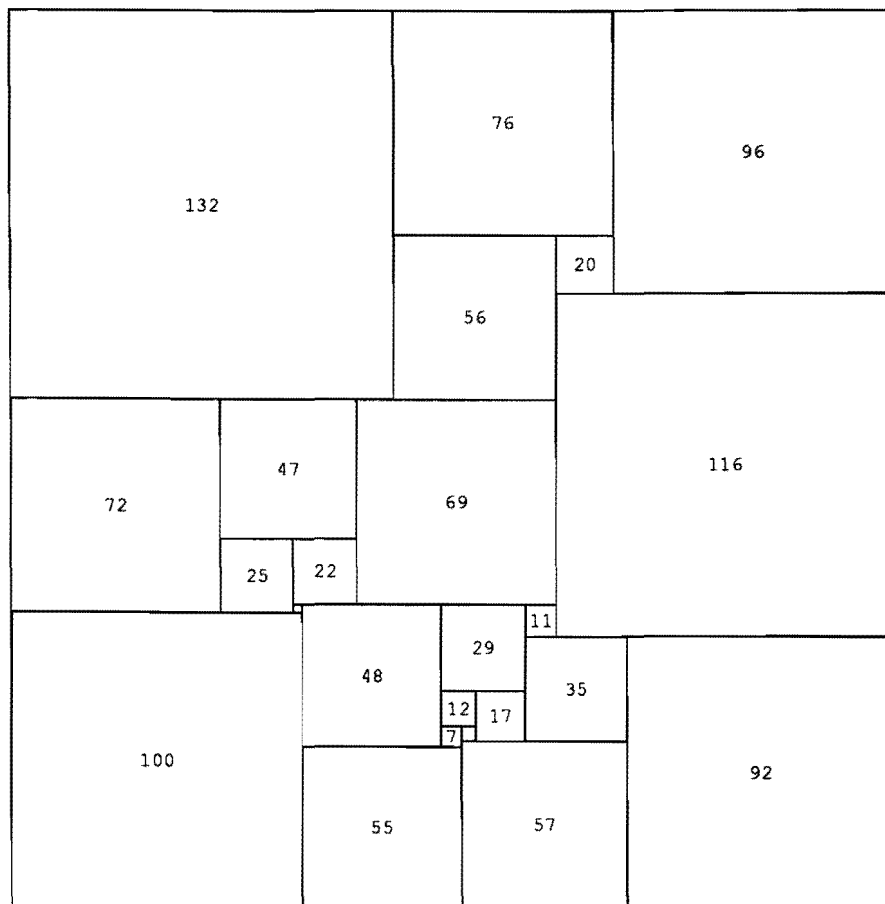   (12, 8) (67) (3, 63) (60)

Order: 24

Reduced side: 304

Elements: 3, 5, 7, 11, 12, 17, 20, 22, 25, 29, 35, 47, 48, 55, 56, 57, 69, 72, 76, 92, 96, 100, 116, 132

Code: (132, 76, 96) (56, 20) (116) (72, 47, 69) (25, 22) (3, 48, 29, 11) (100) (35, 92) (12, 17) (7, 5) (57) (55)
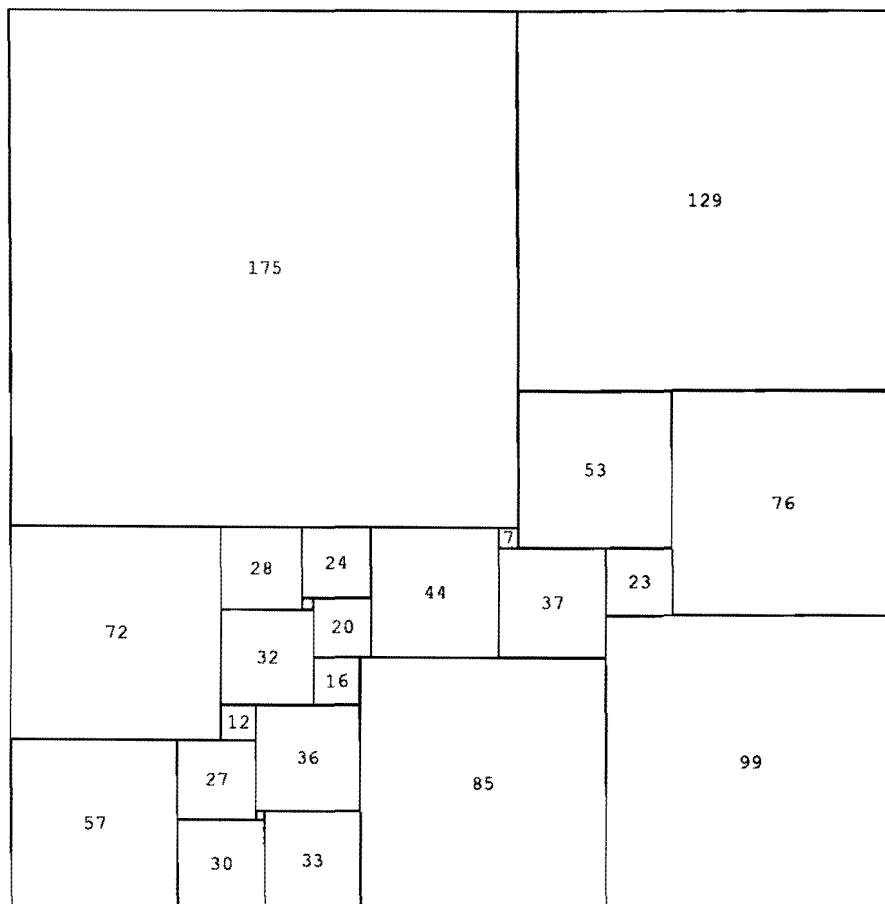
Order: 24

Reduced side: 304

Elements: 3, 4, 7, 12, 16, 20, 23, 24, 27, 28, 30, 32, 33, 36, 37, 44, 53, 57, 72, 76, 85, 99, 129, 175

Code: (175, 129) (53, 76) (72, 28, 24, 44, 7) (37, 23) (4, 20) (32) (99) (16, 85) (12, 36) (57, 27) (3, 33) (30)
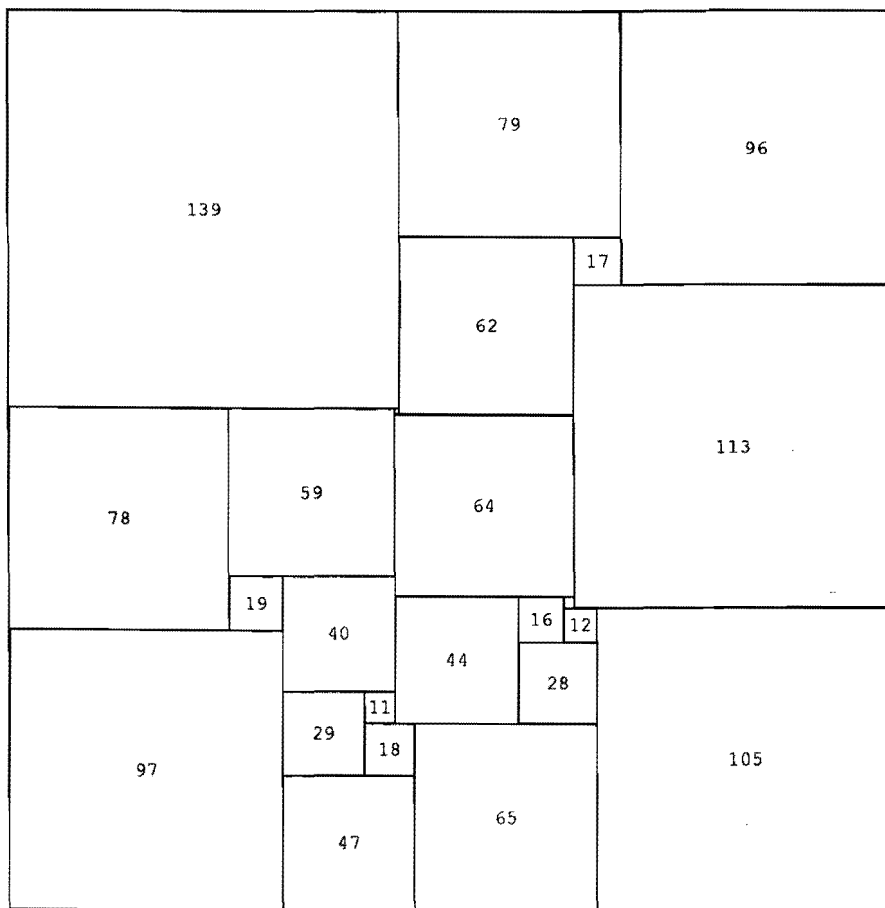
Order: 24

Reduced side: 314

Elements: 2, 4, 11, 12, 16, 17, 18, 19, 28, 29, 40, 44, 47, 59, 62, 64, 65, 78, 79, 96, 97, 105, 113, 139

Code: (139, 79, 96) (62, 17) (113) (78, 59, 2) (64) (19, 40) (44, 16, 4) (12, 105) (97) (28) (29, 11) (18, 65) (47)
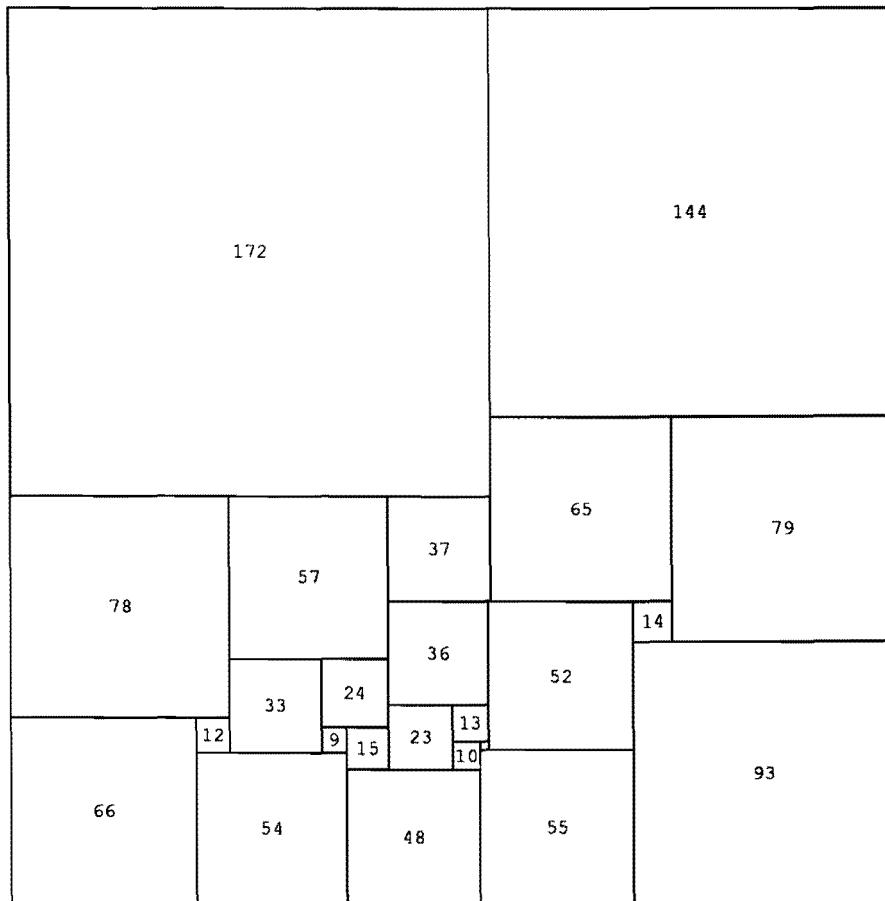
Order: 24

Reduced side: 316

Elements: 3, 9, 10, 12, 13, 14, 15, 23, 24, 33, 36, 37, 48, 52, 54, 55, 57, 65, 66, 78, 79, 93, 144, 172

Code: (172, 144) (65, 79) (78, 57, 37) (36, 52, 14) (93) (33, 24) (23, 13) (66, 12) (9, 15) (10, 3) (55) (54) (48)
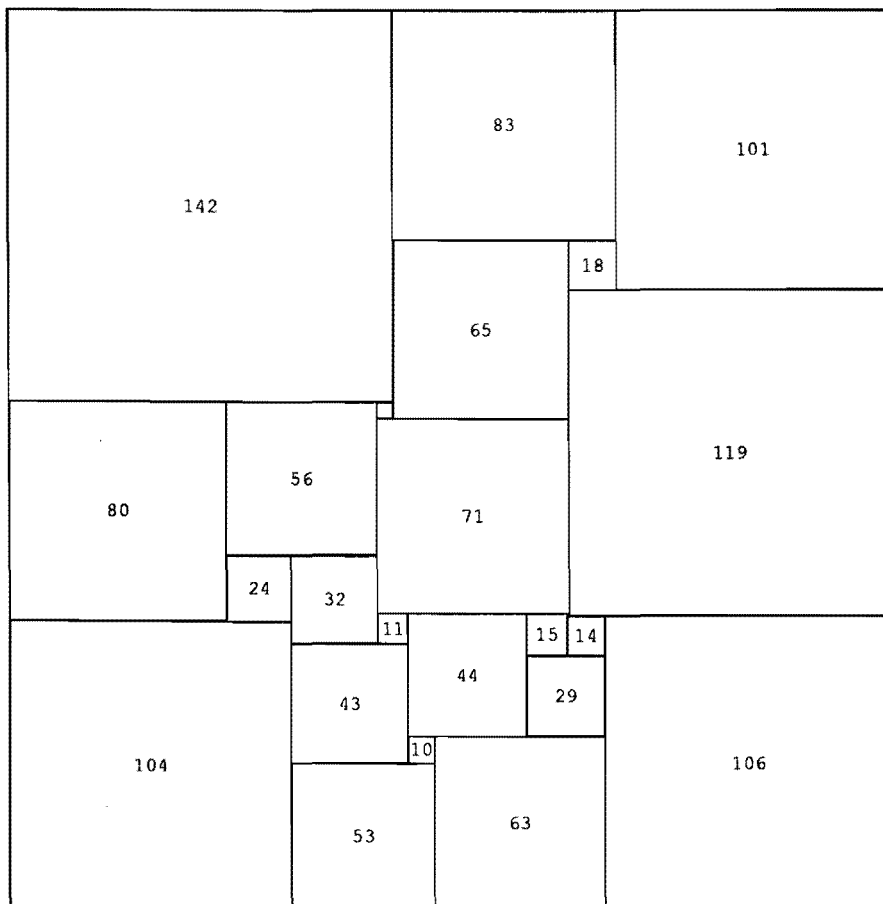
Order: 24

Reduced side: 326

Elements: 1, 6, 10, 11, 14, 15, 18, 24, 29, 32, 43, 44, 53, 56, 63, 65, 71, 80, 83, 101, 104, 106, 119, 142

Code: (142, 83, 101) (65, 18) (119) (80, 56, 6) (71) (24, 32) (11, 44, 15, 1) (14, 106) (104) (43) (29) (10, 63) (53)
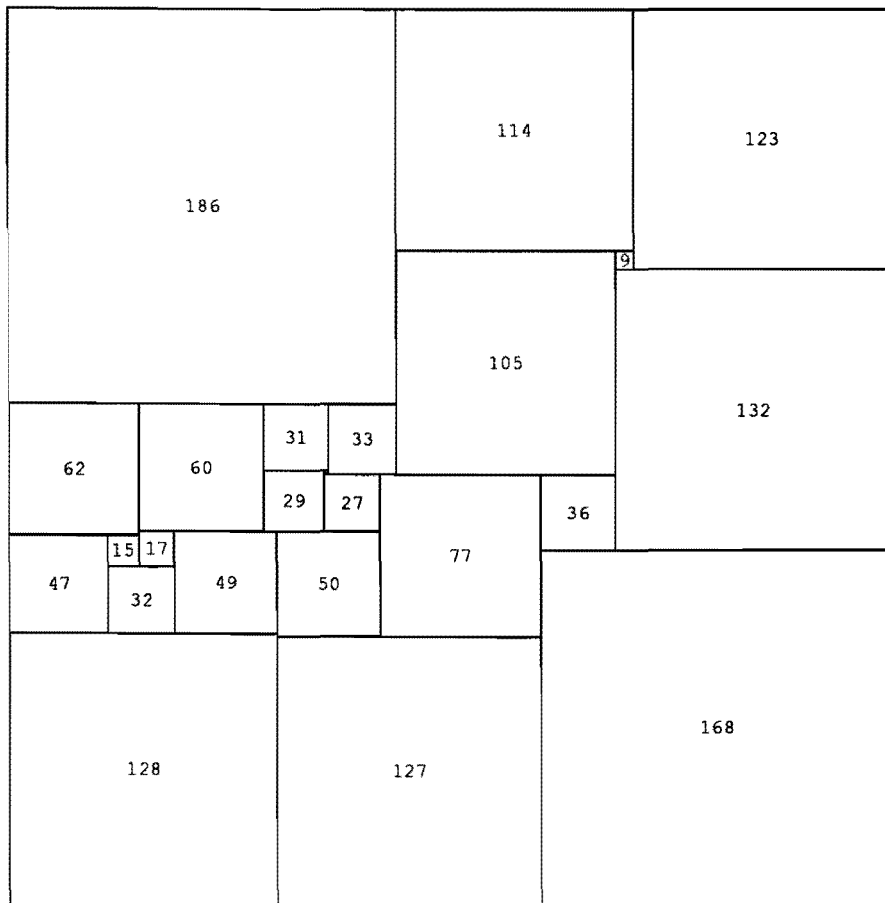
Order: 24

Reduced side: 423

Elements: 2, 9, 15, 17, 27, 29, 31, 32, 33, 36, 47, 49, 50, 60, 62, 77, 105, 114, 123, 127, 128, 132, 168, 186

Code: (186, 114, 123) (105, 9) (132) (62, 60, 31, 33) (29, 2) (27, 77, 36) (17, 49, 50) (47, 15) (168) (32) (128) (127)
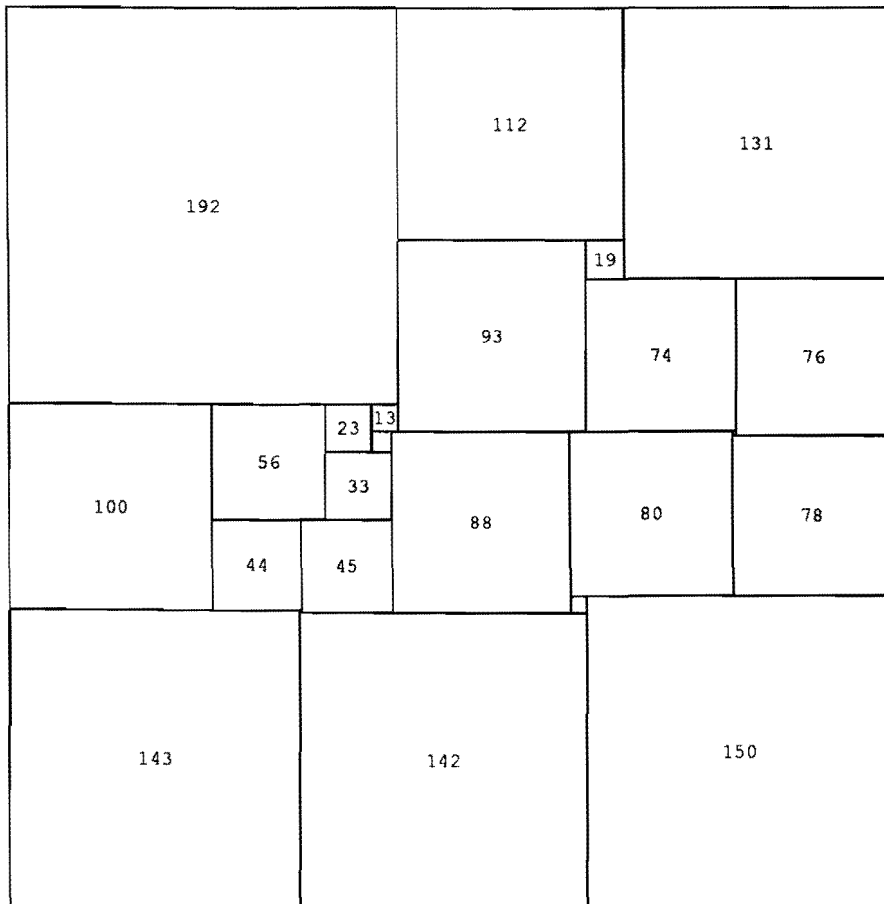
Order: 24

Reduced side: 435

Elements: 1, 2, 8, 10, 13, 19, 23, 33, 44, 45, 56, 74, 76, 78, 80, 88, 93, 100, 112, 131, 142, 143, 150, 192

Code: (192, 112, 131) (93, 19) (74, 76) (100, 56, 23, 13) (10, 88, 80, 2) (78) (33) (44, 45) (8, 150) (143, 1) (142)
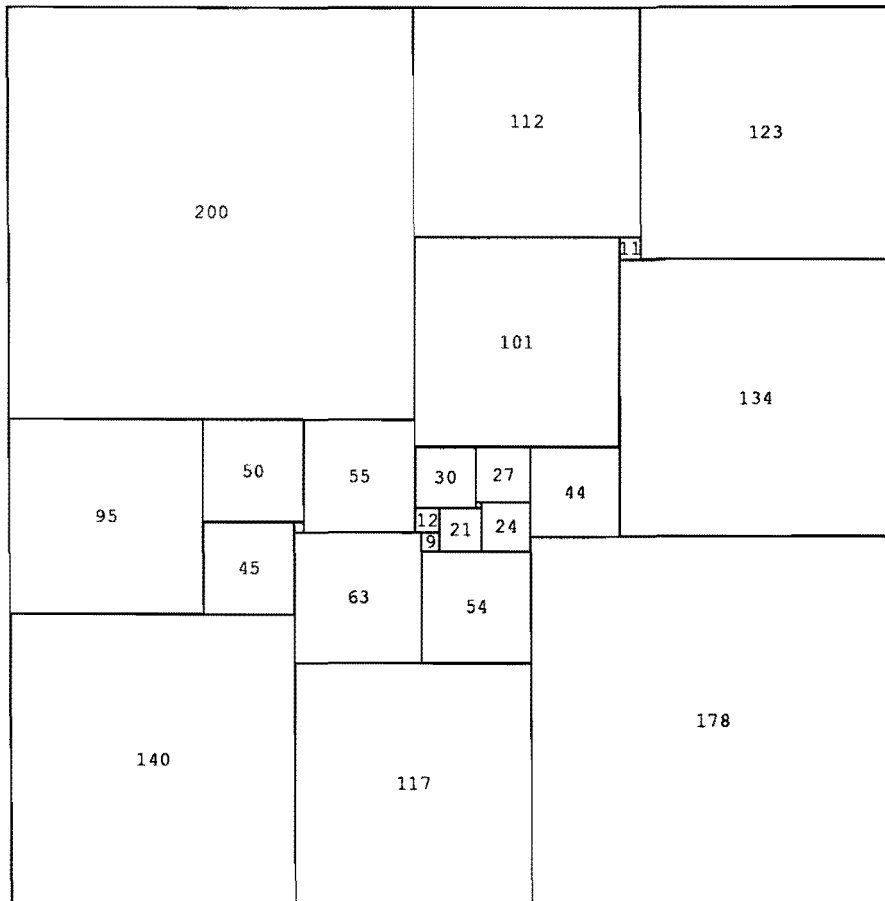
Order: 24

Reduced side: 435

Elements: 3, 5, 9, 11, 12, 21, 24, 27, 30, 44, 45, 50, 54, 55, 63, 95, 101, 112, 117, 123, 134, 140, 178, 200

Code: (200, 112, 123) (101, 11) (134) (95, 50, 55) (30, 27, 44) (3, 24) (12, 21) (45, 5) (63, 9) (178) (54) (140) (117)
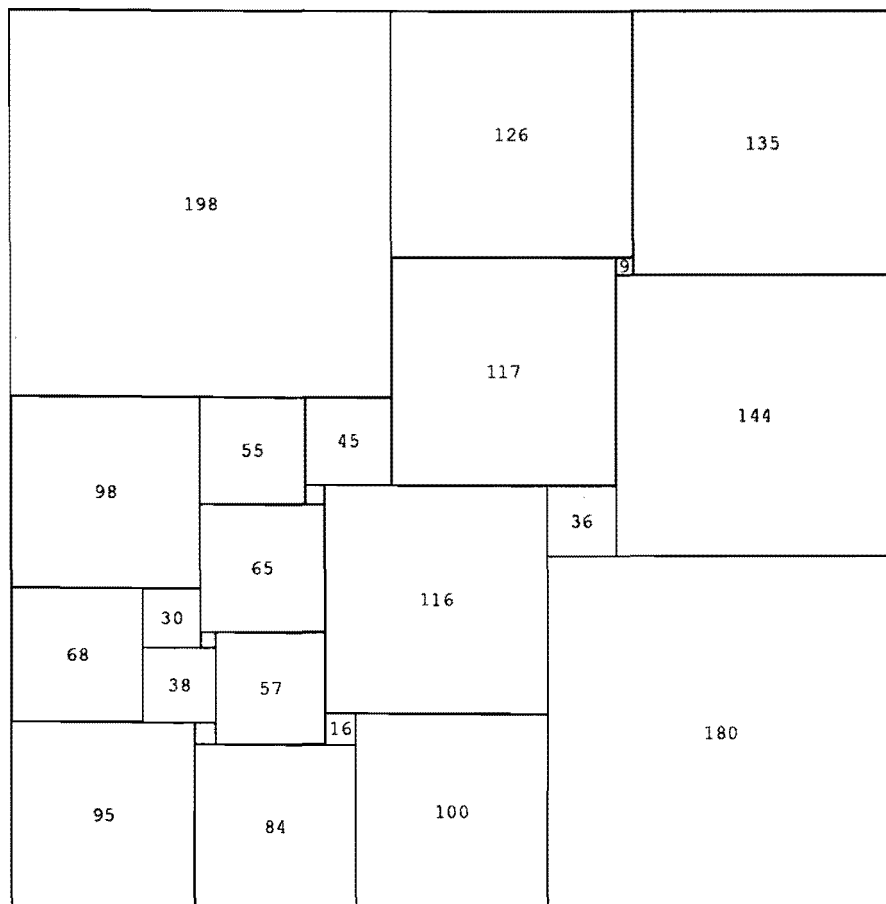
Order: 24

Reduced side: 459

Elements: 8, 9, 10, 11, 16, 30, 36, 38, 45, 55, 57, 65, 68, 84, 95, 98, 100, 116, 117, 126, 135, 144, 180, 198

Code: (198, 126, 135) (117, 9) (144) (98, 55, 45) (10, 116, 36) (65) (180) (68, 30) (8, 57) (38) (16, 100) (95, 11) (84)
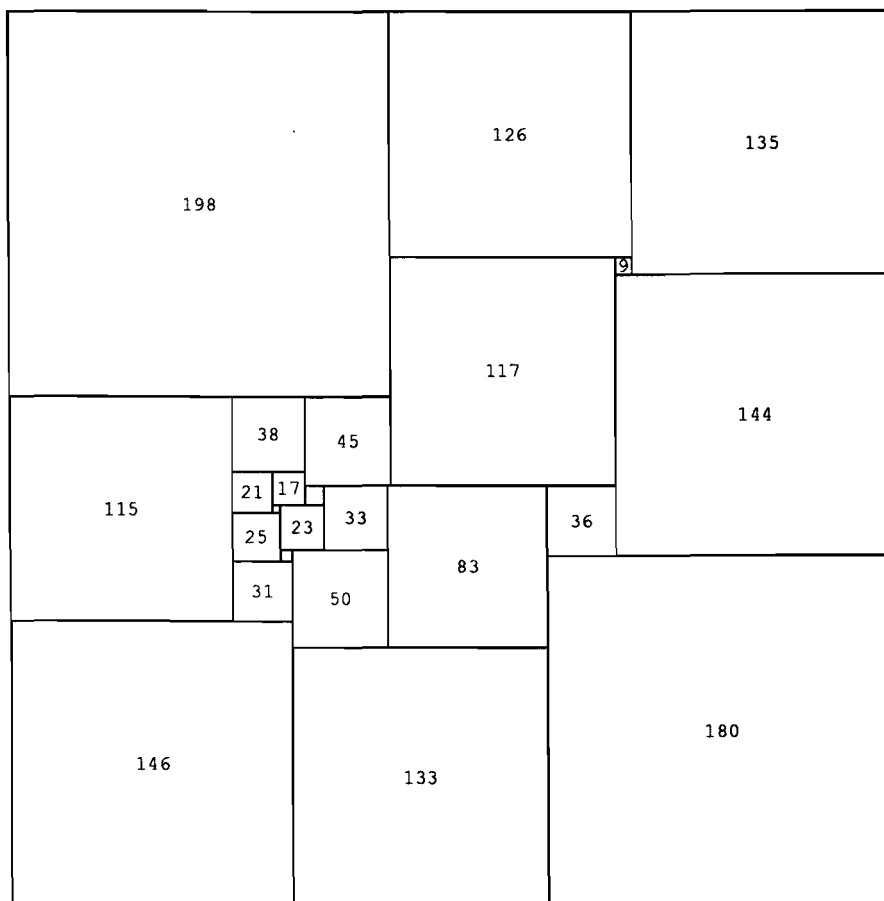
Order: 24

Reduced side: 459

Elements: 4, 6, 9, 10, 17, 21, 23, 25, 31, 33, 36, 38, 45, 50, 83, 115, 117, 126, 133, 135, 144, 146, 180, 198

Code: (198, 126, 135) (117, 9) (144) (115, 38, 45) (21, 17) (10, 33, 83, 36) (4, 23) (25) (6, 50) (180) (31) (146) (133)
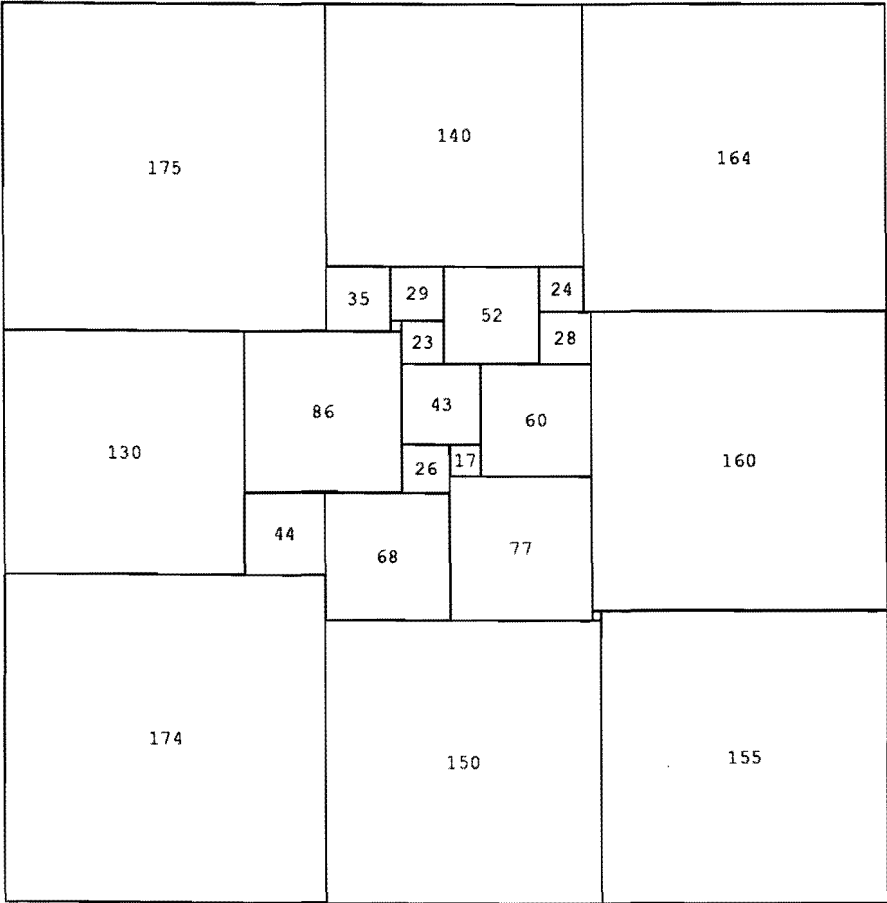
Order: 24

Reduced side: 479

Elements: 5, 6, 17, 23, 24, 26, 28, 29, 35, 43, 44, 52, 60, 68, 77, 86, 130, 140, 150, 155, 160, 164, 174, 175

Code: (175, 140, 164) (35, 29, 52, 24) (28, 160) (6, 23) (130, 86) (43, 60) (26, 17) (77) (44, 68) (174) (5, 155) (150)
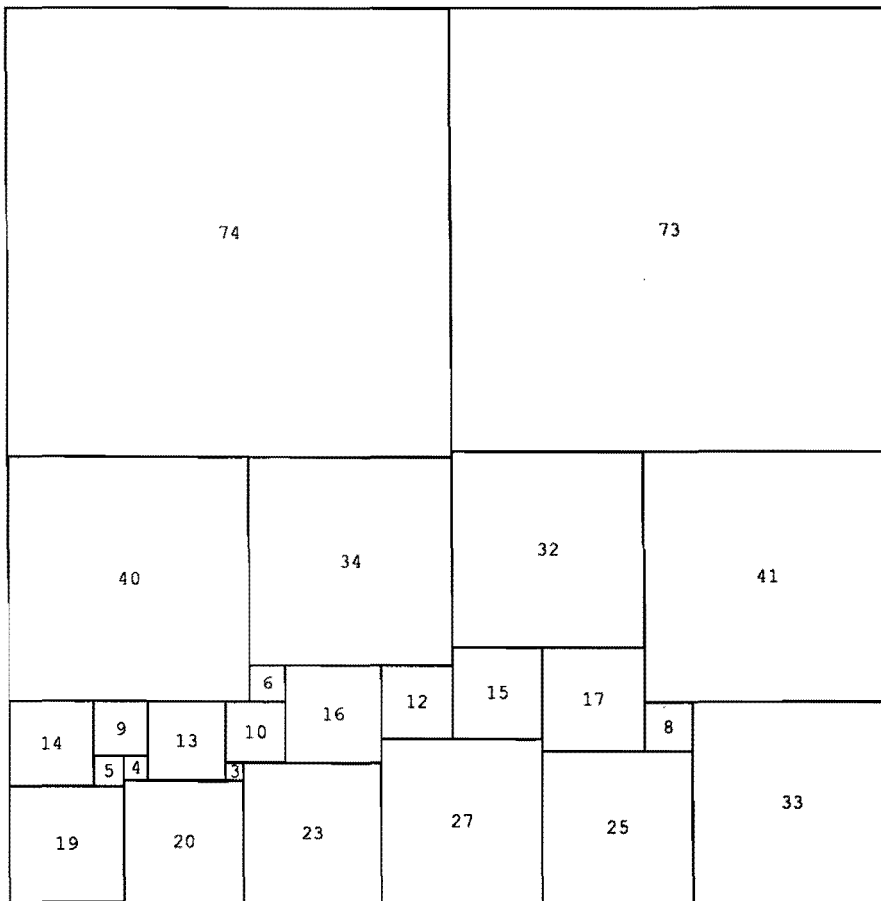
Order: 25

Reduced side: 147

Elements: 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 19, 20, 23, 25, 27, 32, 33, 34, 40, 41, 73, 74

Code: (74, 73) (32, 41) (40, 34) (15, 17) (6, 16, 12) (14, 9, 13, 10) (8, 33) (27) (25) (5, 4) (3, 23) (20) (19)
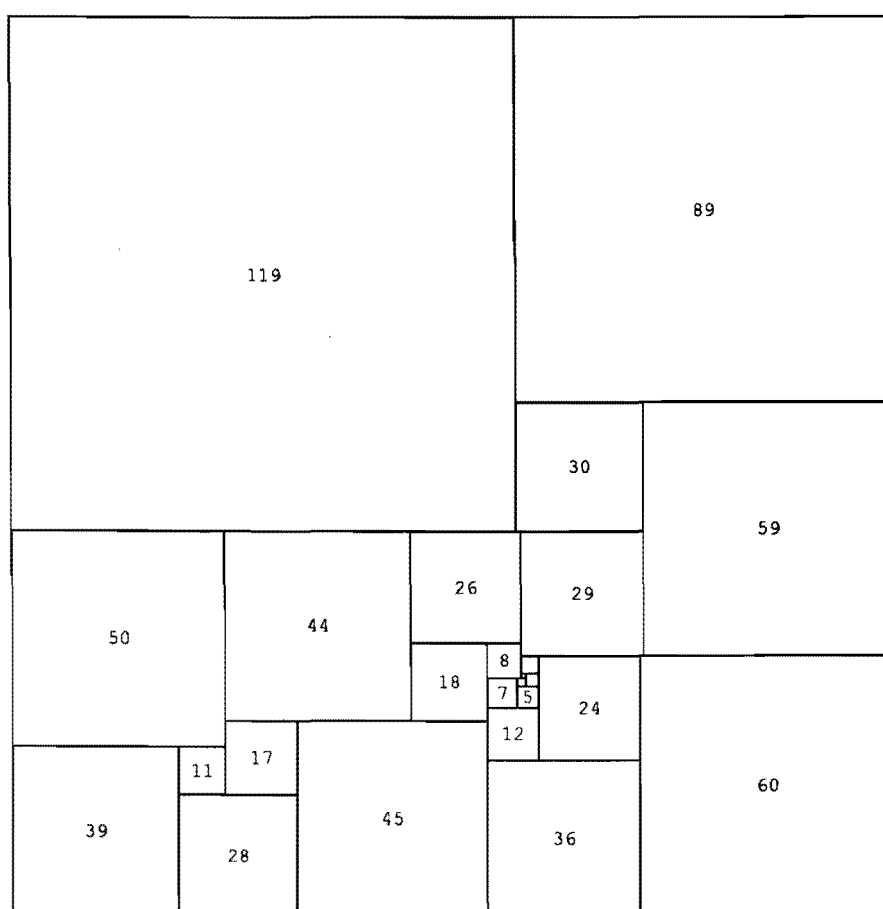
Order: 25

Reduced side: 208

Elements: 1, 2, 3, 4, 5, 7, 8, 11, 12, 17, 18, 24, 26, 28, 29, 30, 36, 39, 44, 45, 50, 59, 60, 89, 119

Code: (119, 89) (30, 59) (50, 44, 26, 29) (18, 8) (4, 24, 60) (1, 3) (7, 2) (5) (12) (17, 45) (39, 11) (36) (28)
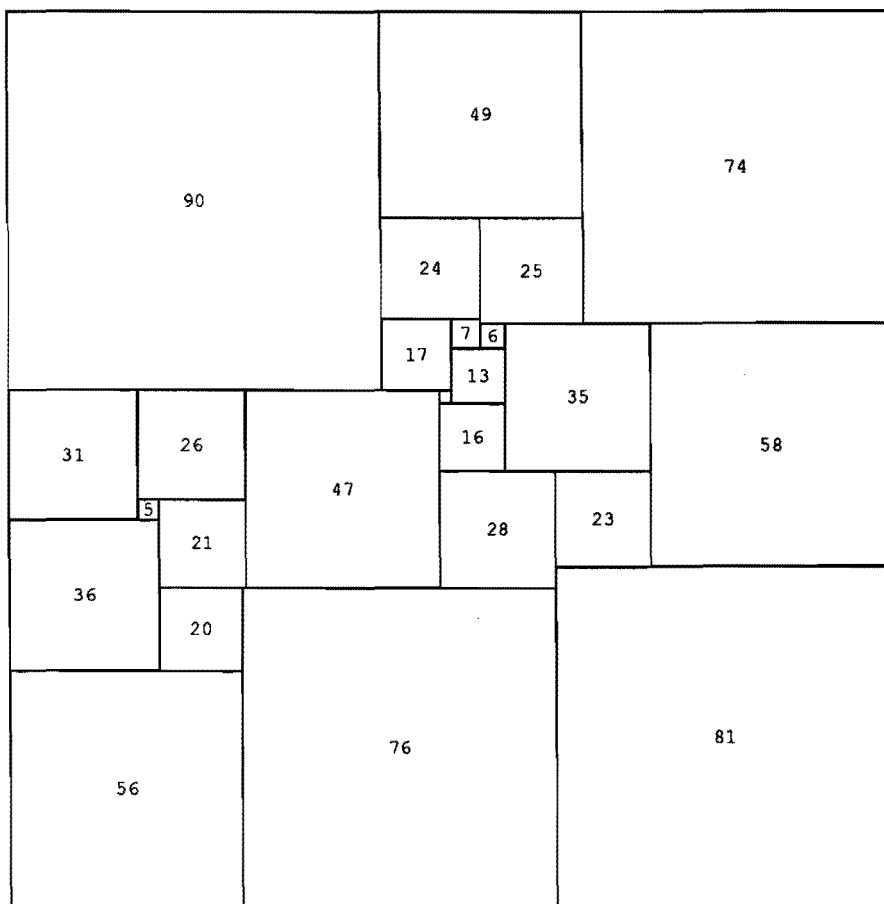
Order: 25

Reduced side: 213

Elements: 3, 5, 6, 7, 13, 16, 17, 20, 21, 23, 24, 25, 26, 28, 31, 35, 36, 47, 49, 56, 58, 74, 76, 81, 90

Code: (90, 49, 74) (24, 25) (17, 7) (6, 35, 58) (13) (31, 26, 47, 3) (16) (28, 23) (5, 21) (36) (81) (20, 76) (56)
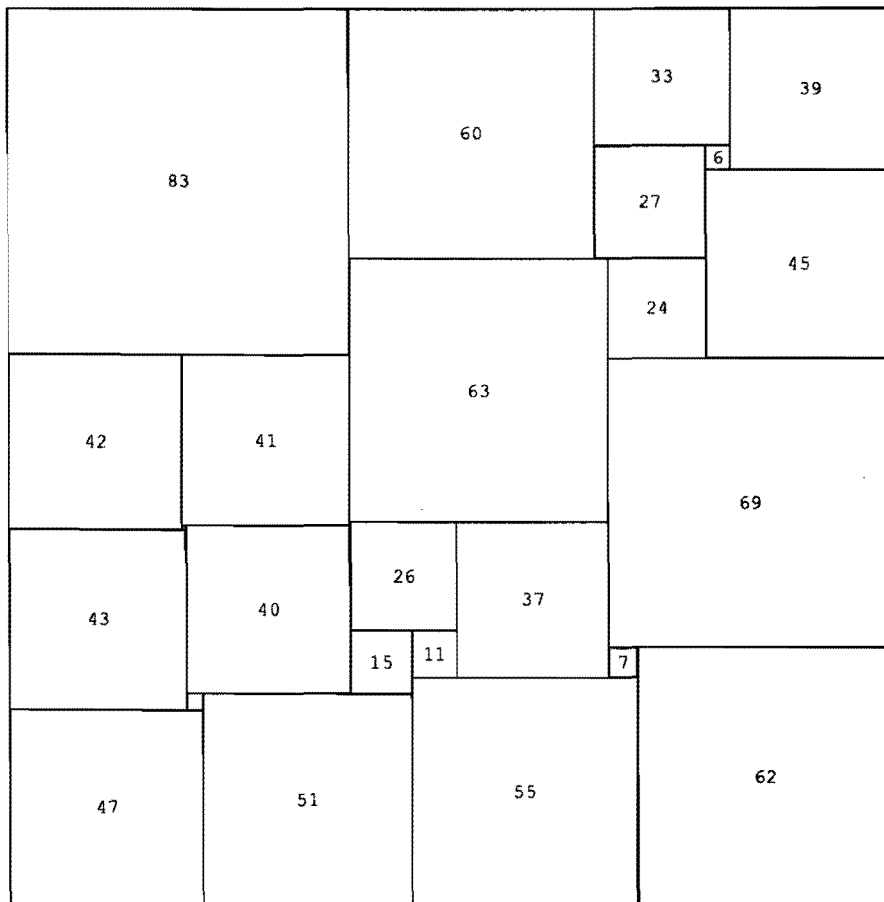
Order: 25

Reduced side: 215

Elements: 1, 4, 6, 7, 11, 15, 24, 26, 27, 33, 37, 39, 40, 41, 42, 43, 45, 47, 51, 55, 60, 62, 63, 69, 83

Code: (83, 60, 33, 39) (27, 6) (45) (63, 24) (42, 41) (69) (26, 37) (1, 40) (43) (15, 11) (7, 62) (55) (4, 51) (47)
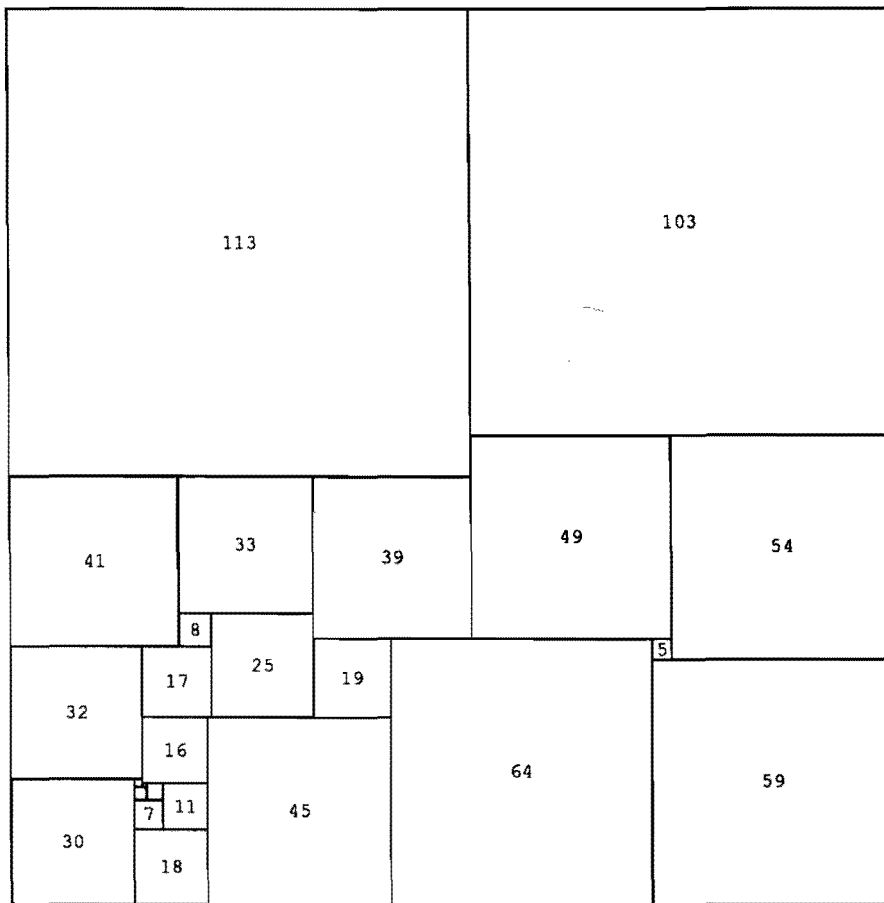
Order: 25

Reduced side: 216

Elements: 1, 2, 3, 4, 5, 7, 8, 11, 16, 17, 18, 19, 25, 30, 32, 33, 39, 41, 45, 49, 54, 59, 64, 103, 113

Code: (113, 103) (49, 54) (41, 33, 39) (8, 25) (19, 64, 5) (32, 17) (59) (16, 45) (30, 2) (1, 4, 11) (3) (7) (18)
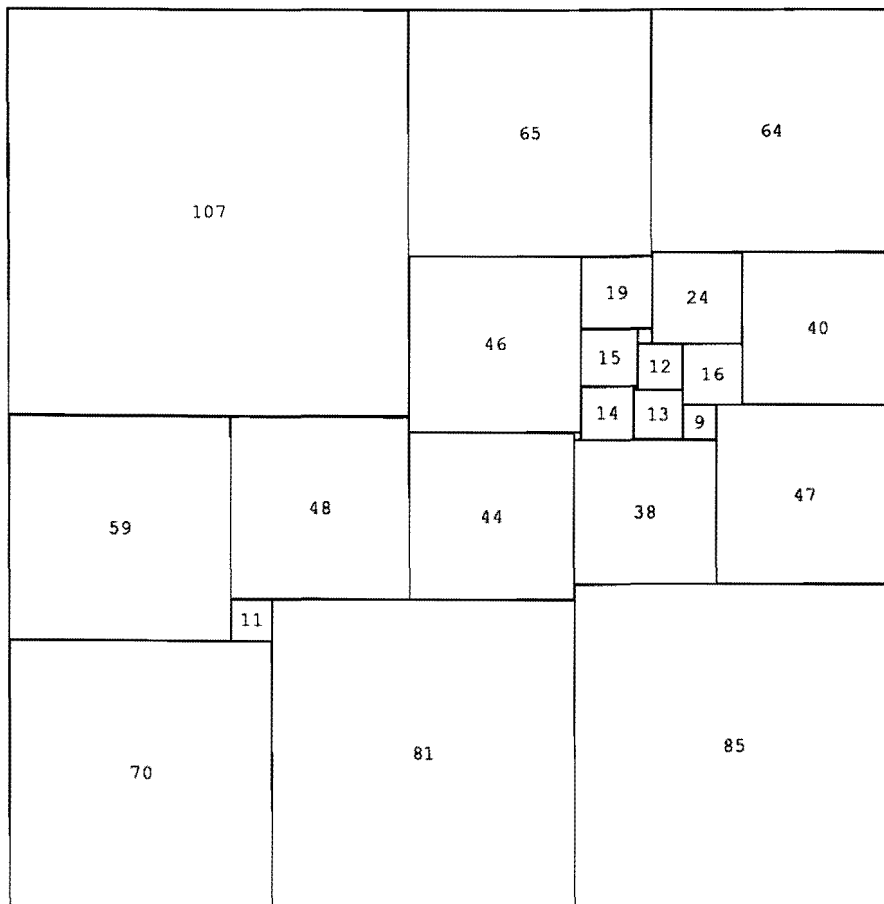
Order: 25

Reduced side: 236

Elements: 1, 2, 4, 9, 11, 12, 13, 14, 15, 16, 19, 24, 38, 40, 44, 46, 47, 48, 59, 64, 65, 70, 81, 85, 107

Code: (107, 65, 64) (24, 40) (46, 19) (15, 4) (12, 16) (14, 1) (13) (9, 47) (59, 48) (44, 2) (38) (85) (11, 81) (70)
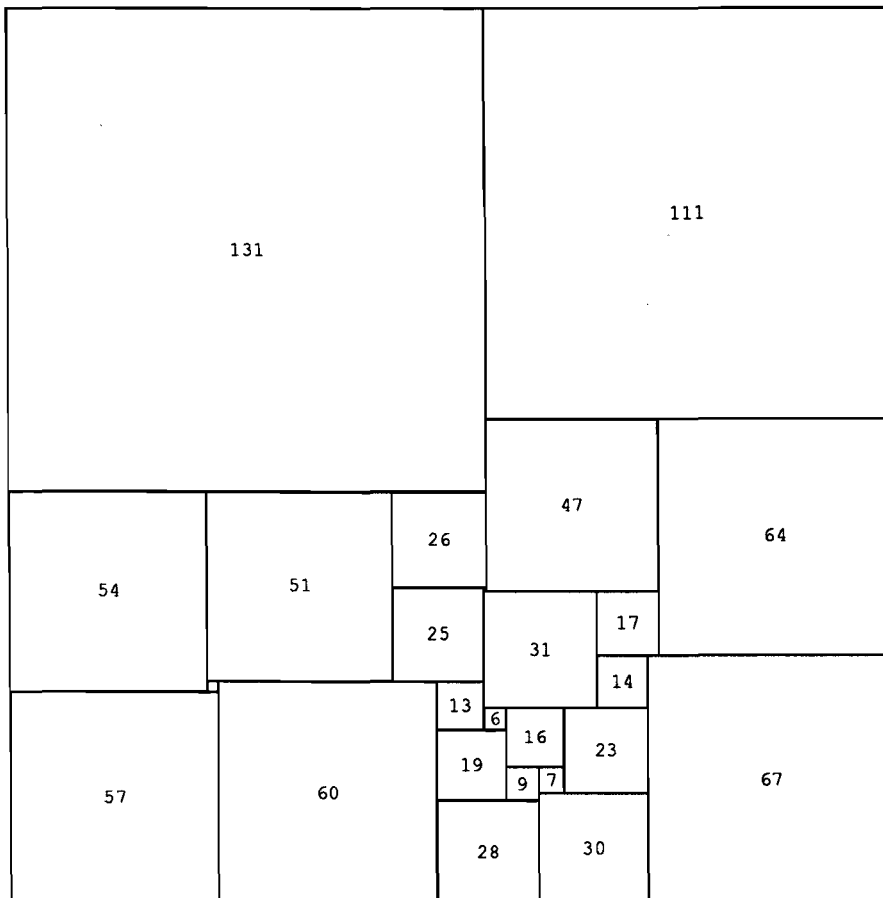
Order: 25

Reduced side: 242

Elements: 1, 3, 6, 7, 9, 13, 14, 16, 17, 19, 23, 25, 26, 28, 30, 31, 47, 51, 54, 57, 60, 64, 67, 111, 131

Code: (131, 111) (47, 64) (54, 51, 26) (25, 1) (31, 17) (14, 67) (3, 60, 13) (57) (6, 16, 23) (19) (9, 7) (30) (28)
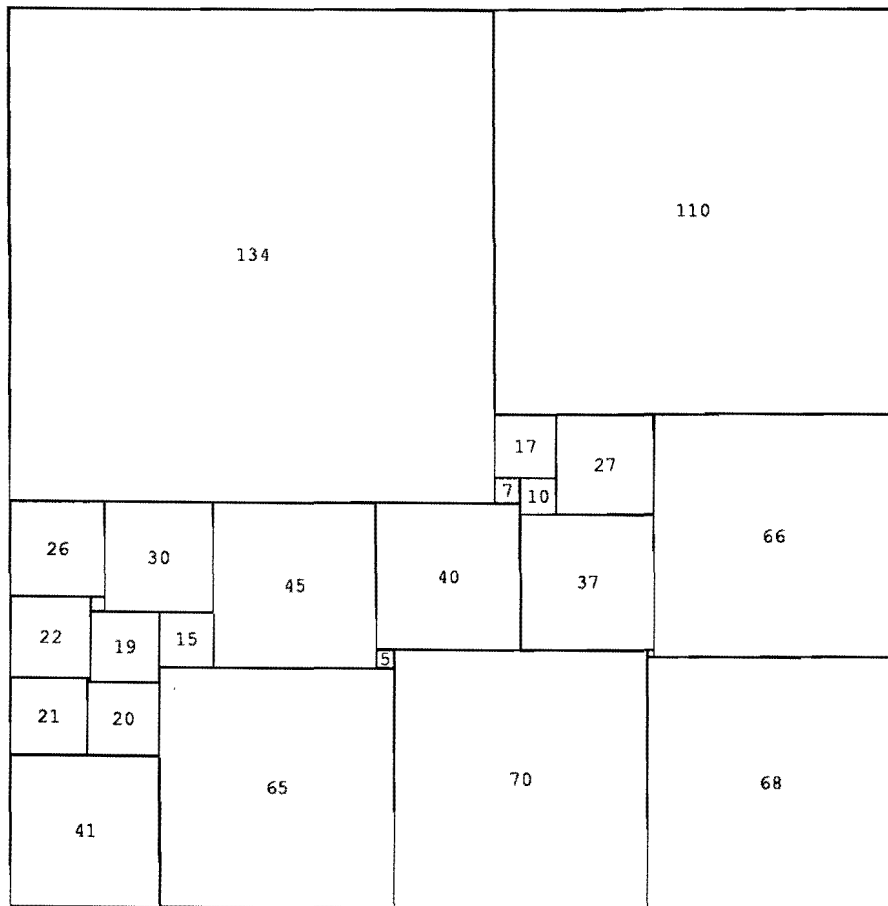
Order: 25

Reduced side: 244

Elements: 1, 2, 4, 5, 7, 10, 15, 17, 19, 20, 21, 22, 26, 27, 30, 37, 40, 41, 45, 65, 66, 68, 70, 110, 134

Code: (134, 110) (17, 27, 66) (7, 10) (26, 30, 45, 40) (37) (22, 4) (19, 15) (5, 70, 2) (68) (65) (21, 1) (20) (41)
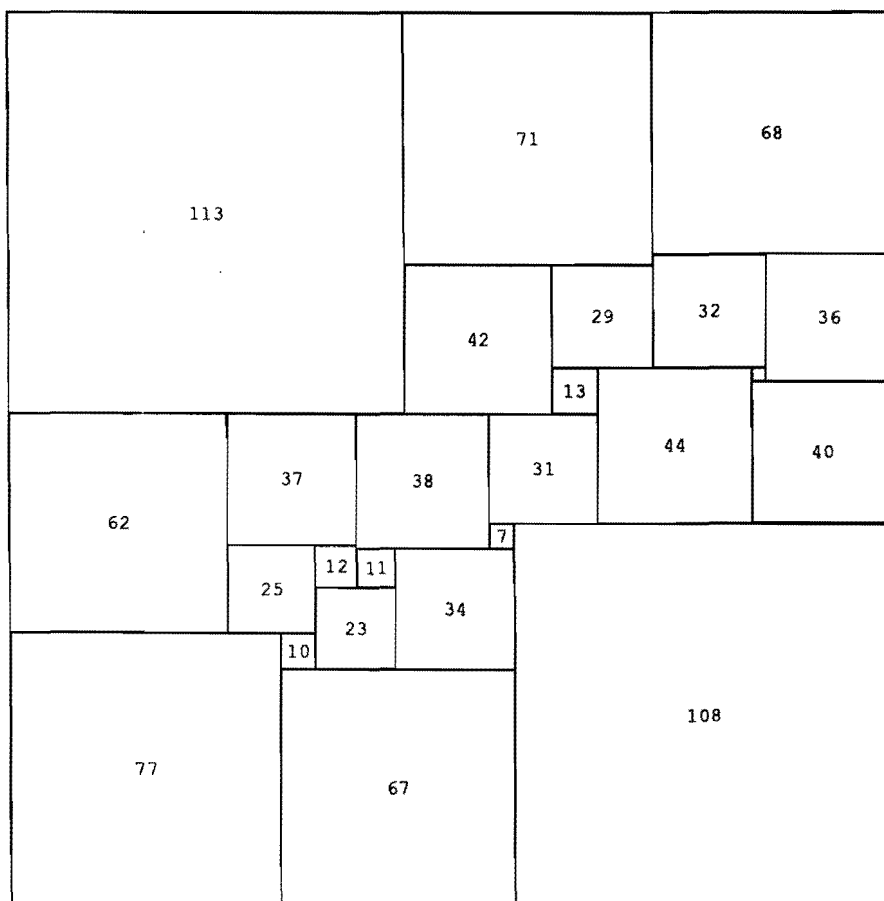
Order: 25

Reduced side: 252

Elements: 4, 7, 10, 11, 12, 13, 23, 25, 29, 31, 32, 34, 36, 37, 38, 40, 42, 44, 62, 67, 68, 71, 77, 108, 113

Code: (113, 71, 68) (32, 36) (42, 29) (13, 44, 4) (40) (62, 37, 38, 31) (7, 108) (25, 12) (11, 34) (23) (77, 10) (67)
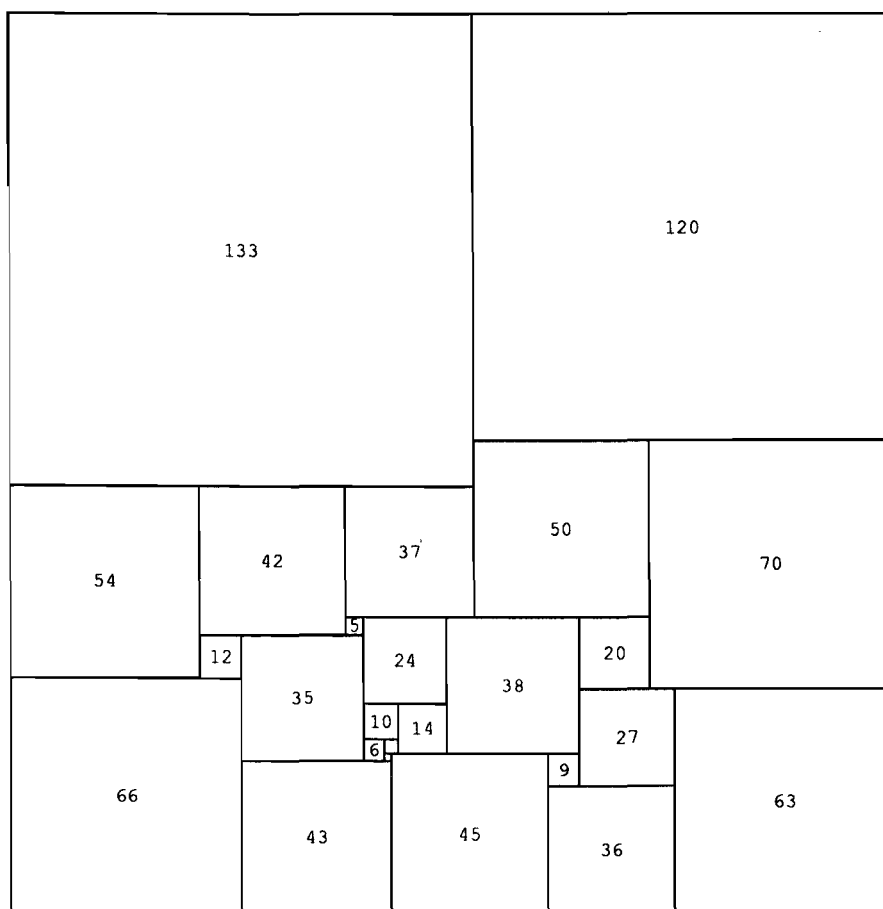
Order: 25

Reduced side: 253

Elements: 2, 4, 5, 6, 9, 10, 12, 14, 20, 24, 27, 35, 36, 37, 38, 42, 43, 45, 50, 54, 63, 66, 70, 120, 133

Code: (133, 120) (50, 70) (54, 42, 37) (5, 24, 38, 20) (12, 35) (66) (27, 63) (10, 14) (6, 4) (2, 45, 9) (43) (36)
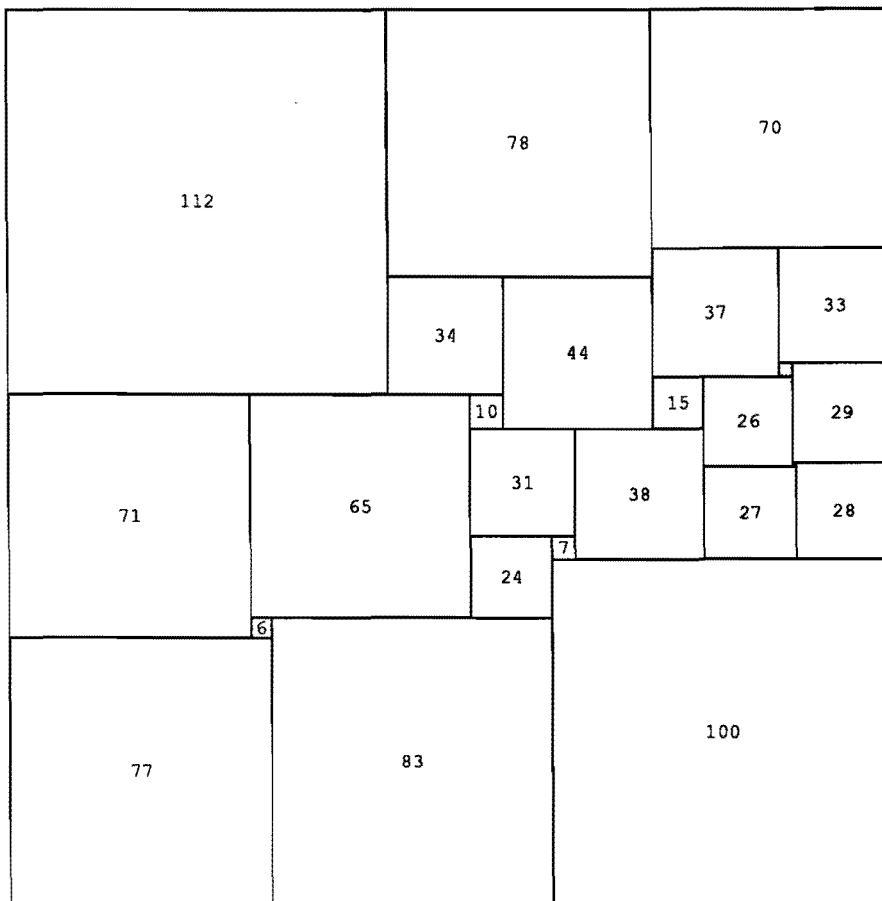
Order: 25

Reduced side: 260

Elements: 1, 4, 6, 7, 10, 15, 24, 26, 27, 28, 29, 31, 33, 34, 37, 38, 44, 65, 70, 71, 77, 78, 83, 100, 112

Code: (112, 78, 70) (37, 33) (34, 44) (4, 29) (15, 26) (71, 65, 10) (31, 38) (1, 28) (27) (24, 7) (100) (6, 83) (77)
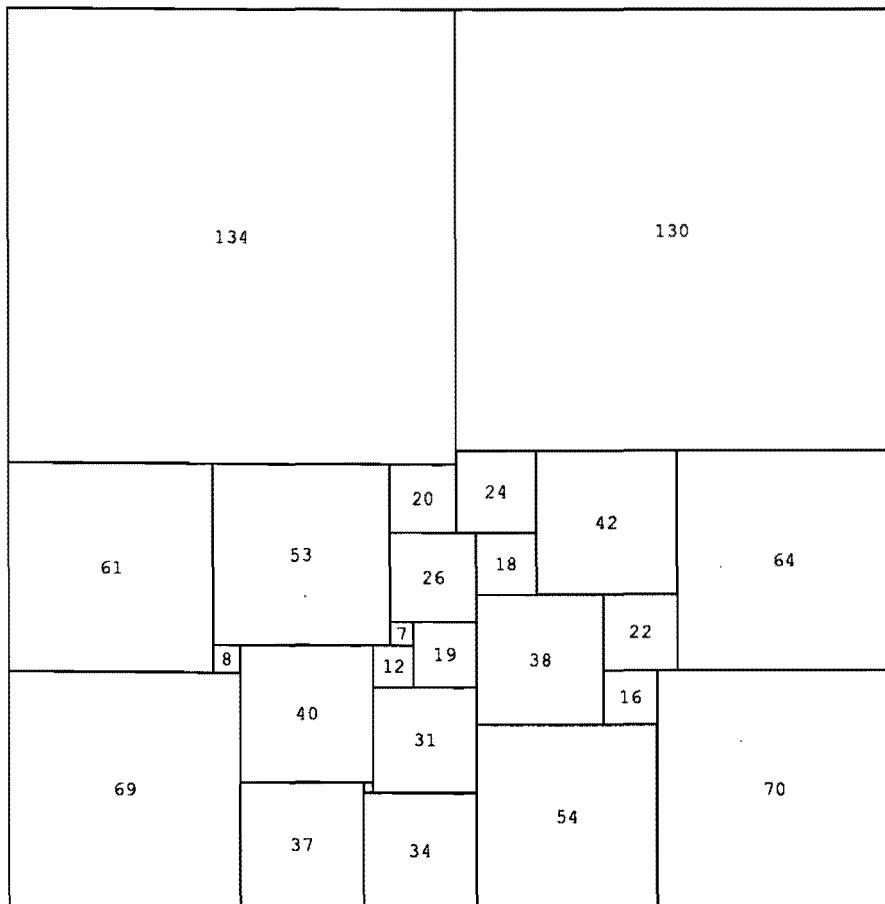
Order: 25

Reduced side: 264

Elements: 3, 7, 8, 12, 16, 18, 19, 20, 22, 24, 26, 31, 34, 37, 38, 40, 42, 53, 54, 61, 64, 69, 70, 130, 134

Code: (134, 130) (24, 42, 64) (61, 53, 20) (26, 18) (38, 22) (7, 19) (8, 40, 12) (16, 70) (69) (31) (54) (37, 3) (34)
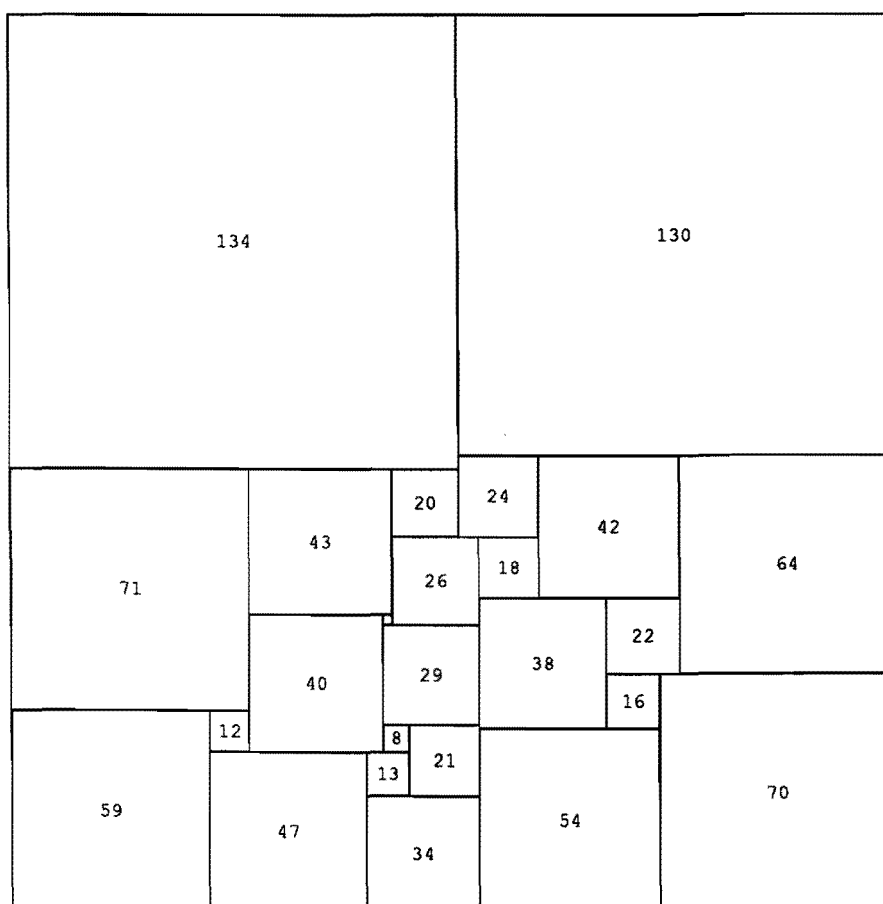
Order: 25

Reduced side: 264

Elements: 3, 8, 12, 13, 16, 18, 20, 21, 22, 24, 26, 29, 34, 38, 40, 42, 43, 47, 54, 59, 64, 70, 71, 130, 134

Code: (134, 130) (24, 42, 64) (71, 43, 20) (26, 18) (38, 22) (40, 3) (29) (16, 70) (59, 12) (8, 21) (54) (47, 13) (34)
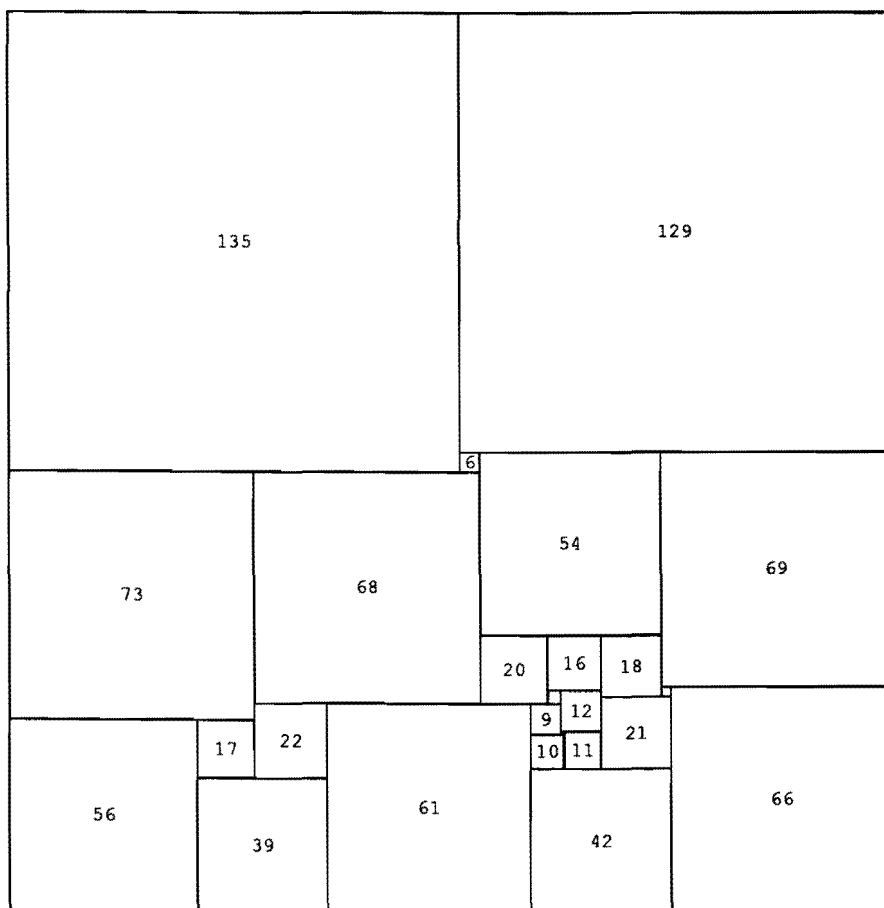
Order: 25

Reduced side: 264

Elements: 1, 3, 4, 6, 9, 10, 11, 12, 16, 17, 18, 20, 21, 22, 39, 42, 54, 56, 61, 66, 68, 69, 73, 129, 135

Code: (135, 129) (6, 54, 69) (73, 68) (20, 16, 18) (3, 66) (4, 12) (21) (22, 61, 9) (56, 17) (1, 11) (10) (42) (39)
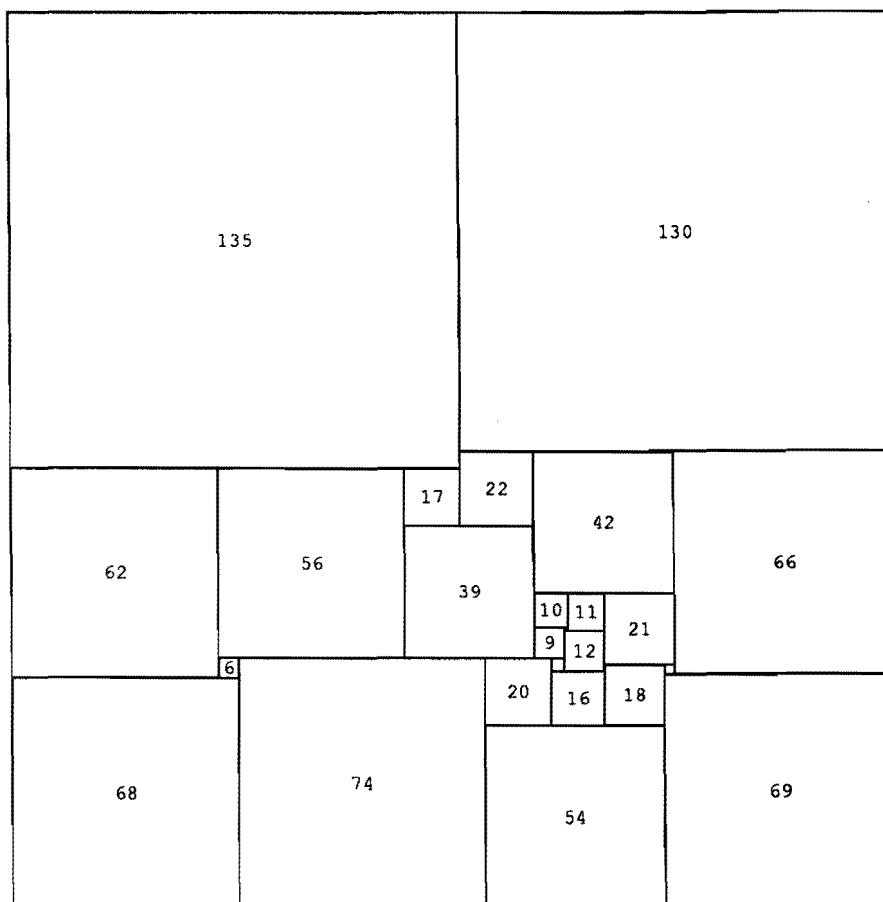
Order: 25

Reduced side: 265

Elements: 1, 3, 4, 6, 9, 10, 11, 12, 16, 17, 18, 20, 21, 22, 39, 42, 54, 56, 62, 66, 68, 69, 74, 130, 135

Code: (135, 130) (22, 42, 66) (62, 56, 17) (39) (10, 11, 21) (9, 1) (12) (6, 74, 20, 4) (18, 3) (16) (69) (68) (54)
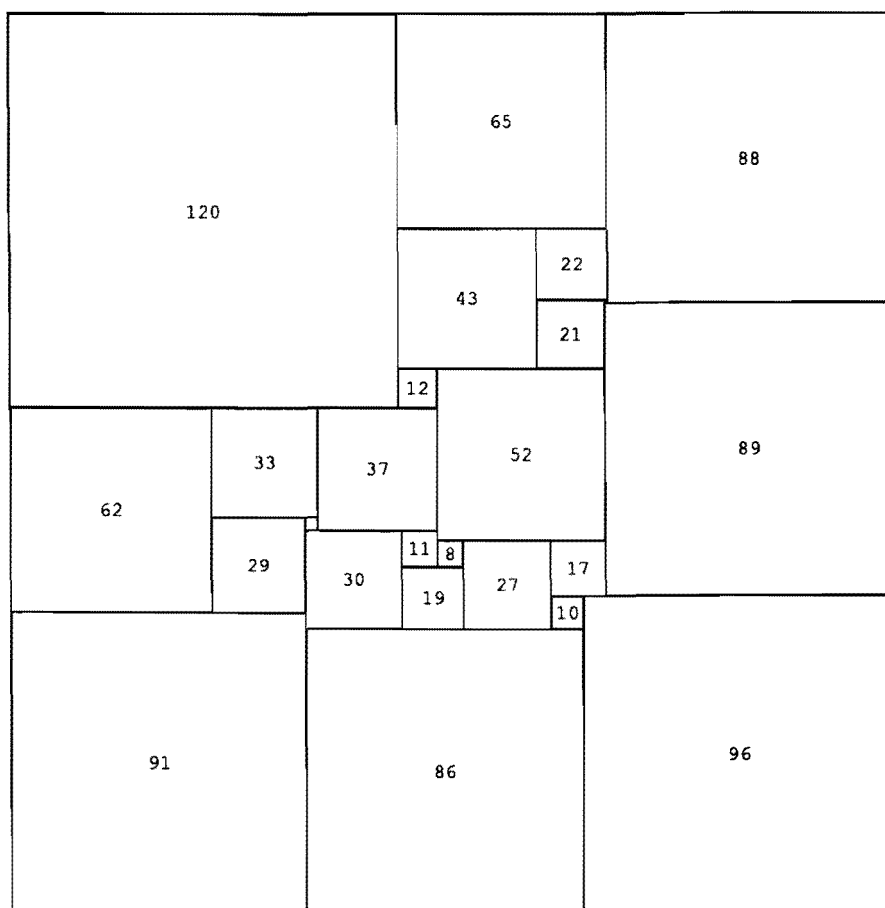
Order: 25

Reduced side: 273

Elements: 1, 4, 8, 10, 11, 12, 17, 19, 21, 22, 27, 29, 30, 33, 37, 43, 52, 62, 65, 86, 88, 89, 91, 96, 120

Code: (120, 65, 88) (43, 22) (21, 1) (89) (12, 52) (62, 33, 37) (29, 4) (30, 11) (8, 27, 17) (19) (10, 96) (91) (86)
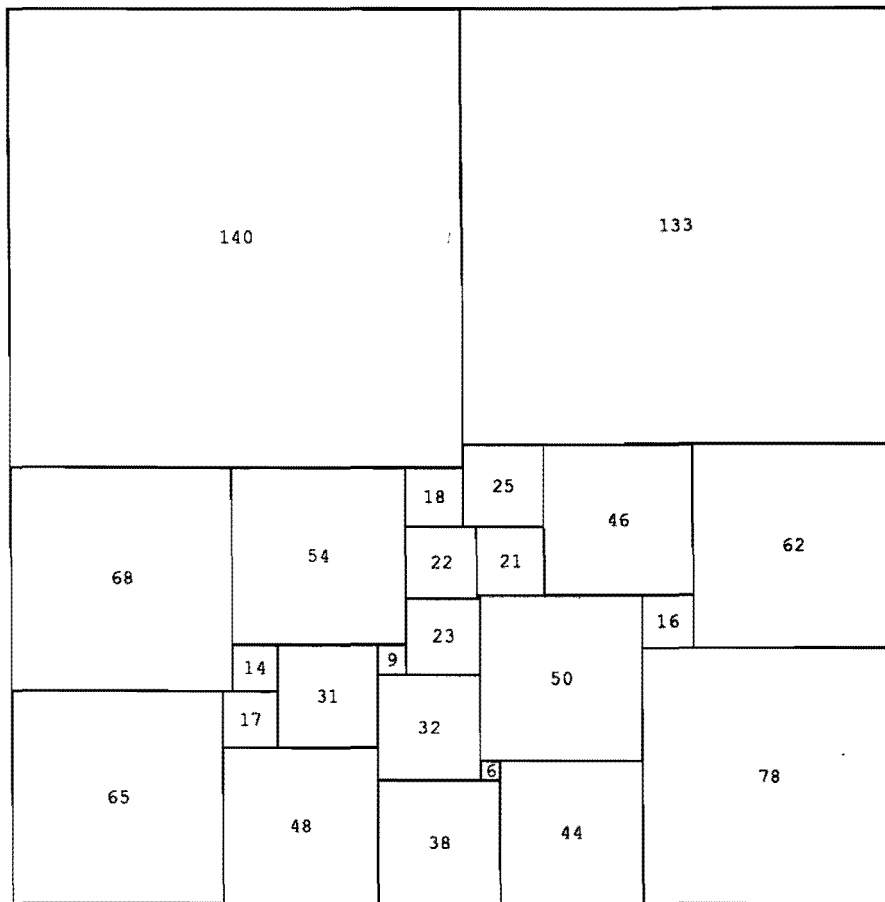
Order: 25

Reduced side: 273

Elements: 1, 6, 9, 14, 16, 17, 18, 21, 22, 23, 25, 31, 32, 38, 44, 46, 48, 50, 54, 62, 65, 68, 78, 133, 140

Code: (140, 133) (25, 46, 62) (68, 54, 18) (22, 21) (1, 50, 16) (23) (14, 31, 9) (78) (32) (65, 17) (48) (6, 44) (38)
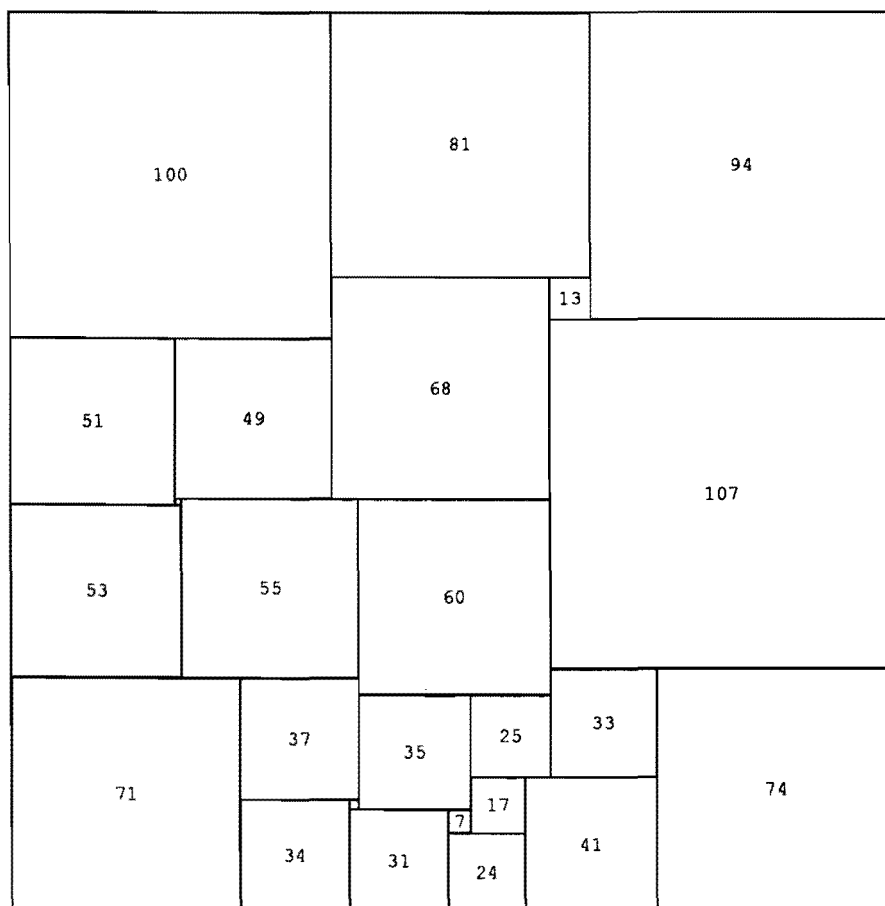
Order: 25

Reduced side: 275

Elements: 2, 3, 7, 13, 17, 24, 25, 31, 33, 34, 35, 37, 41, 49, 51, 53, 55, 60, 68, 71, 74, 81, 94, 100, 107

Code: (100, 81, 94) (68, 13) (107) (51, 49) (2, 55, 60) (53) (33, 74) (71, 37) (35, 25) (17, 41) (34, 3) (31, 7) (24)
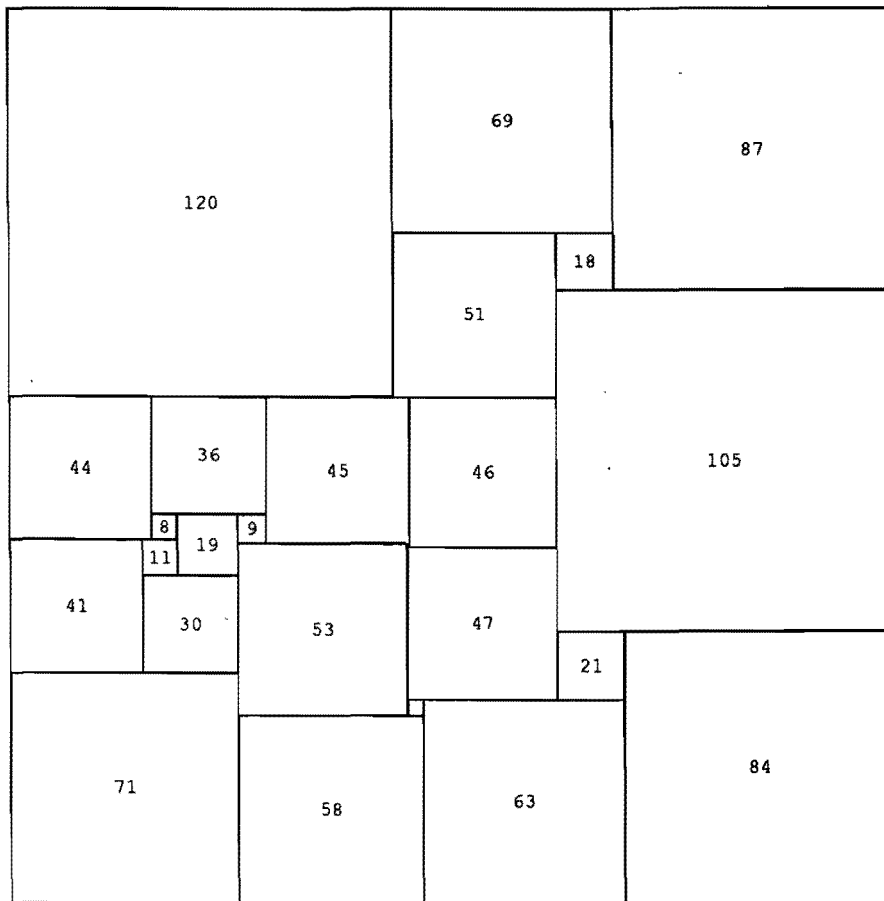
Order: 25

Reduced side: 276

Elements: 1, 5, 8, 9, 11, 18, 19, 21, 30, 36, 41, 44, 45, 46, 47, 51, 53, 58, 63, 69, 71, 84, 87, 105, 120

Code: (120, 69, 87) (51, 18) (105) (44, 36, 45, 46) (8, 19, 9) (41, 11) (53, 1) (47) (30) (21, 84) (71) (5, 63) (58)
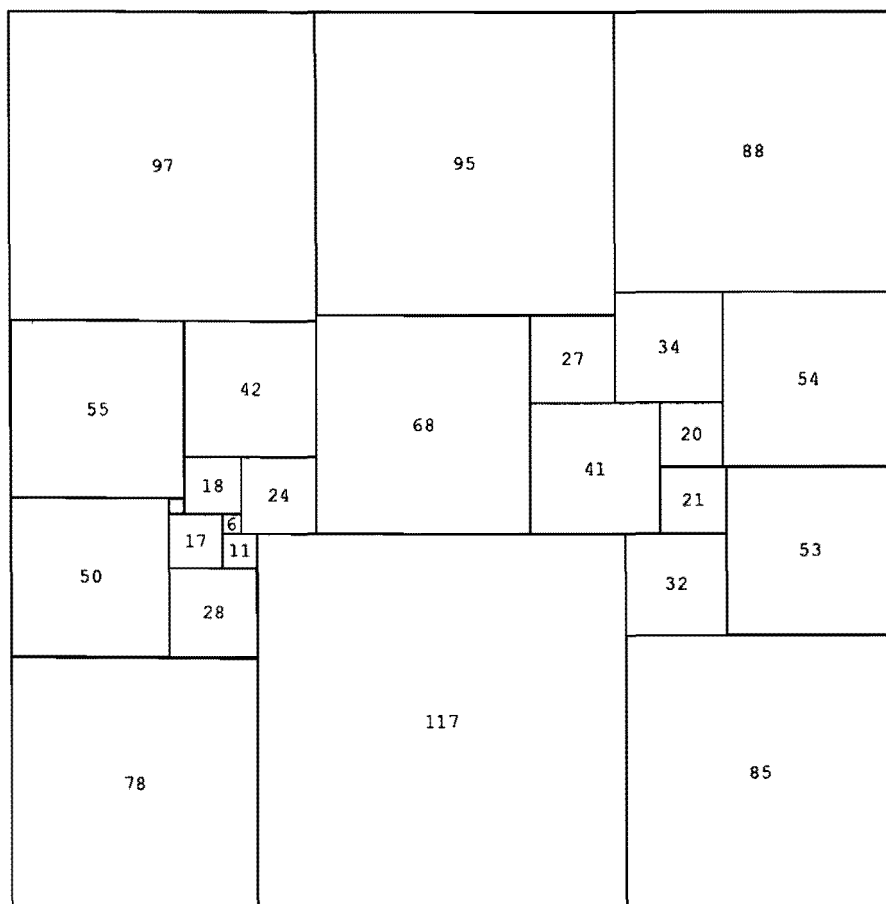
Order: 25

Reduced side: 280

Elements: 5, 6, 11, 17, 18, 20, 21, 24, 27, 28, 32, 34, 41, 42, 50, 53, 54, 55, 68, 78, 85, 88, 95, 97, 117

Code: (97, 95, 88) (34, 54) (68, 27) (55, 42) (41, 20) (18, 24) (21, 53) (50, 5) (17, 6) (11, 117, 32) (28) (85) (78)
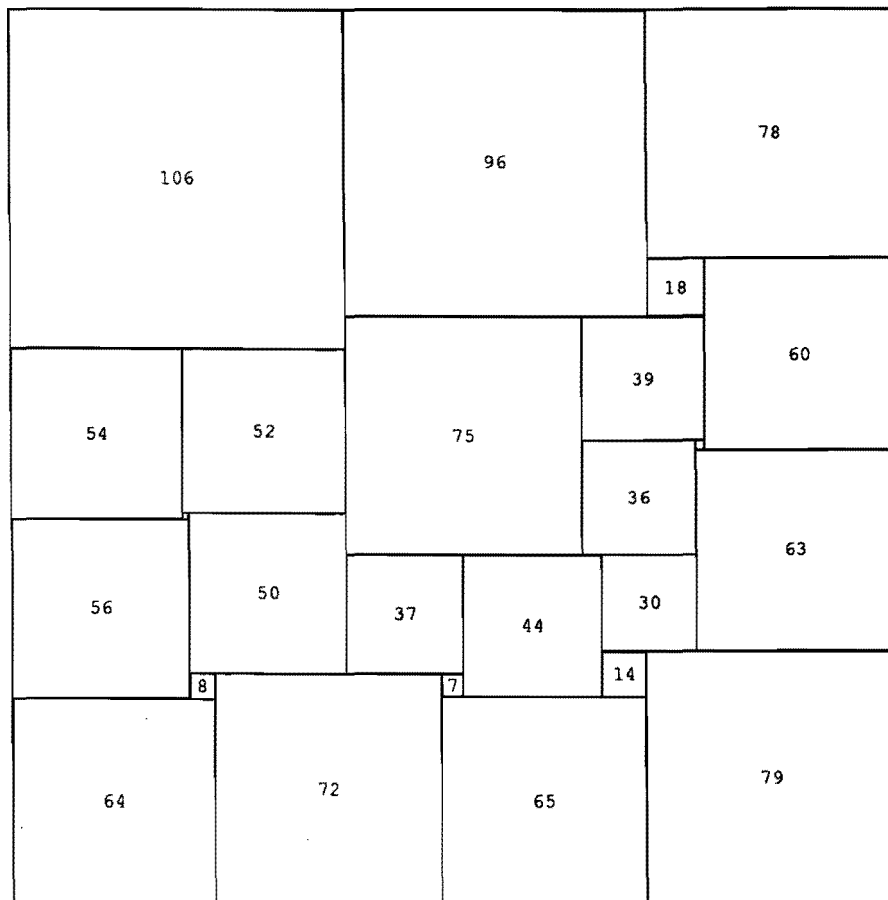
Order: 25

Reduced side: 280

Elements: 2, 3, 7, 8, 14, 18, 30, 36, 37, 39, 44, 50, 52, 54, 56, 60, 63, 64, 65, 72, 75, 78, 79, 96, 106

Code: (106, 96, 78) (18, 60) (75, 39) (54, 52) (36, 3) (63) (2, 50) (56) (37, 44, 30) (14, 79) (8, 72, 7) (65) (64)
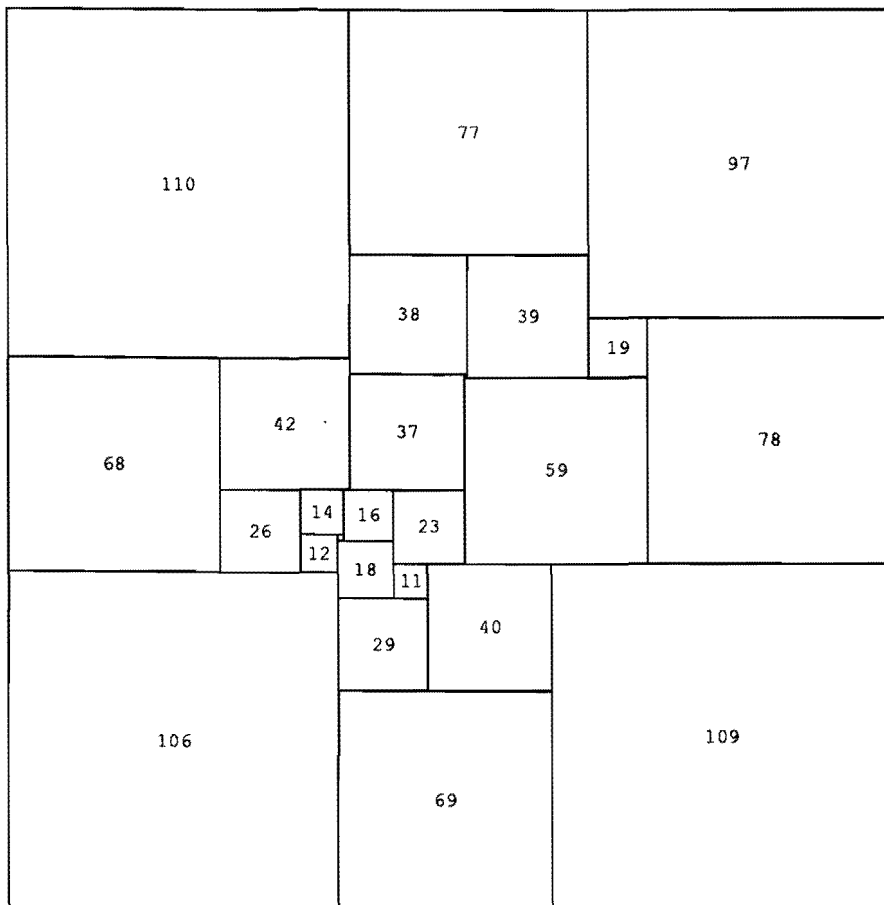
Order: 25

Reduced side: 284

Elements: 1, 2, 11, 12, 14, 16, 18, 19, 23, 26, 29, 37, 38, 39, 40, 42, 59, 68, 69, 77, 78,
                97, 106, 109, 110

Code: (110, 77, 97) (38, 39) (19, 78) (68, 42) (37, 1) (59) (26, 14, 16, 23) (12, 2)
                (18) (11, 40, 109) (106) (29) (69)

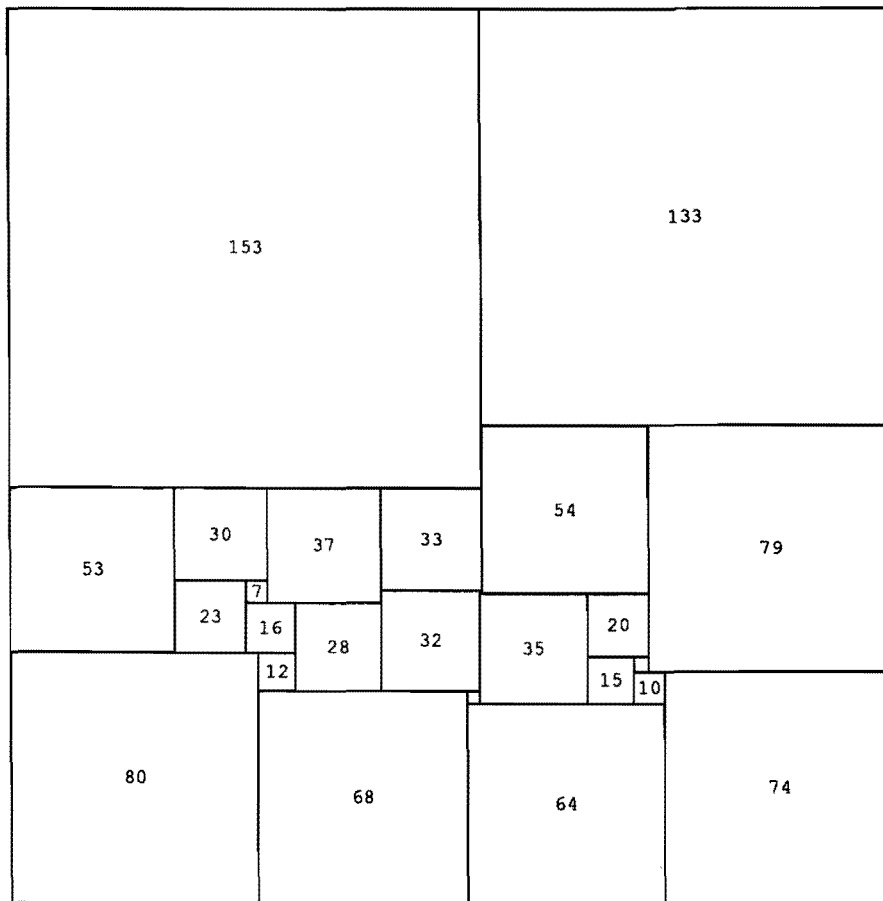Order: 25

Reduced side: 286

Elements: 1, 4, 5, 7, 10, 12, 15, 16, 20, 23, 28, 30, 32, 33, 35, 37, 53, 54, 64, 68, 74, 79, 80, 133, 153

Code: (153, 133) (54, 79) (53, 30, 37, 33) (23, 7) (32, 1) (35, 20) (16, 28) (80, 12) (15, 5) (10, 74) (68, 4) (64)
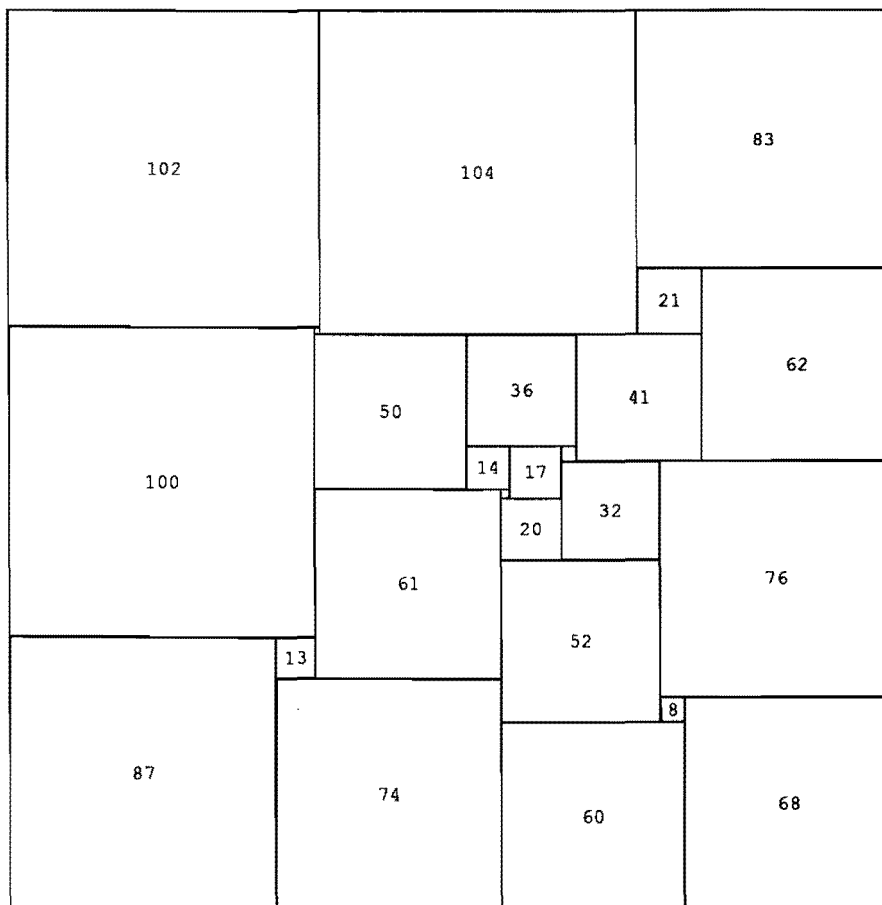
Order: 25

Reduced side: 289

Elements: 2, 3, 5, 8, 13, 14, 17, 20, 21, 32, 36, 41, 50, 52, 60, 61, 62, 68, 74, 76, 83, 87, 100, 102, 104

Code: (102, 104, 83) (21, 62) (100, 2) (50, 36, 41) (14, 17, 5) (32, 76) (61, 3) (20) (52) (87, 13) (74) (8, 68) (60)
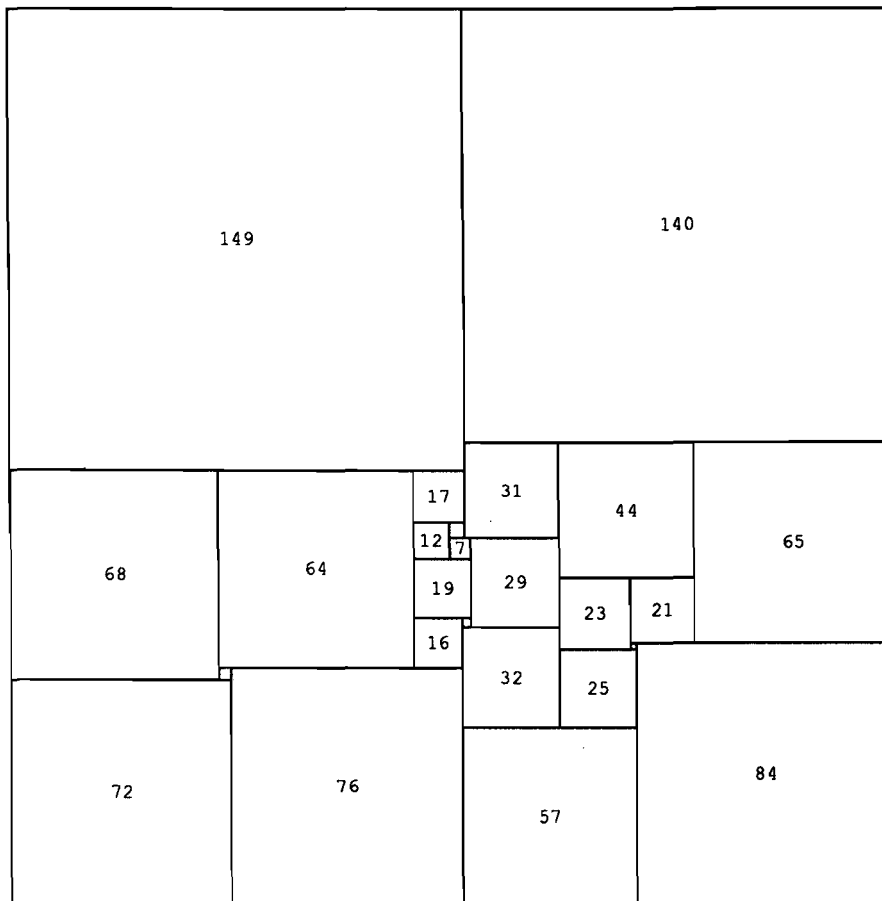
Order: 25

Reduced side: 289

Elements: 2, 3, 4, 5, 7, 12, 16, 17, 19, 21, 23, 25, 29, 31, 32, 44, 57, 64, 65, 68, 72, 76, 84, 140, 149

Code: (149, 140) (31, 44, 65) (68, 64, 17) (12, 5) (7, 29) (19) (23, 21) (16, 3) (32) (2, 84) (25) (4, 76) (72) (57)
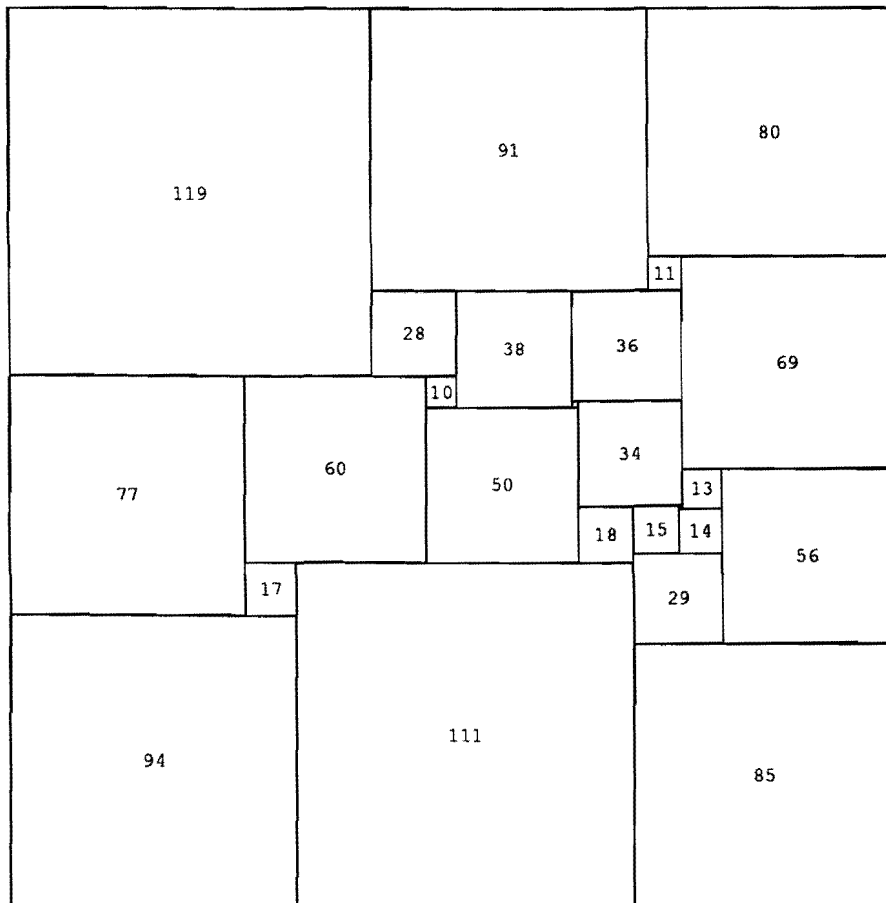
Order: 25

Reduced side: 290

Elements: 1, 2, 10, 11, 13, 14, 15, 17, 18, 28, 29, 34, 36, 38, 50, 56, 60, 69, 77, 80, 85, 91, 94, 111, 119

Code: (119, 91, 80) (11, 69) (28, 38, 36) (77, 60, 10) (2, 34) (50) (13, 56) (18, 15, 1) (14) (29) (17, 111) (94) (85)
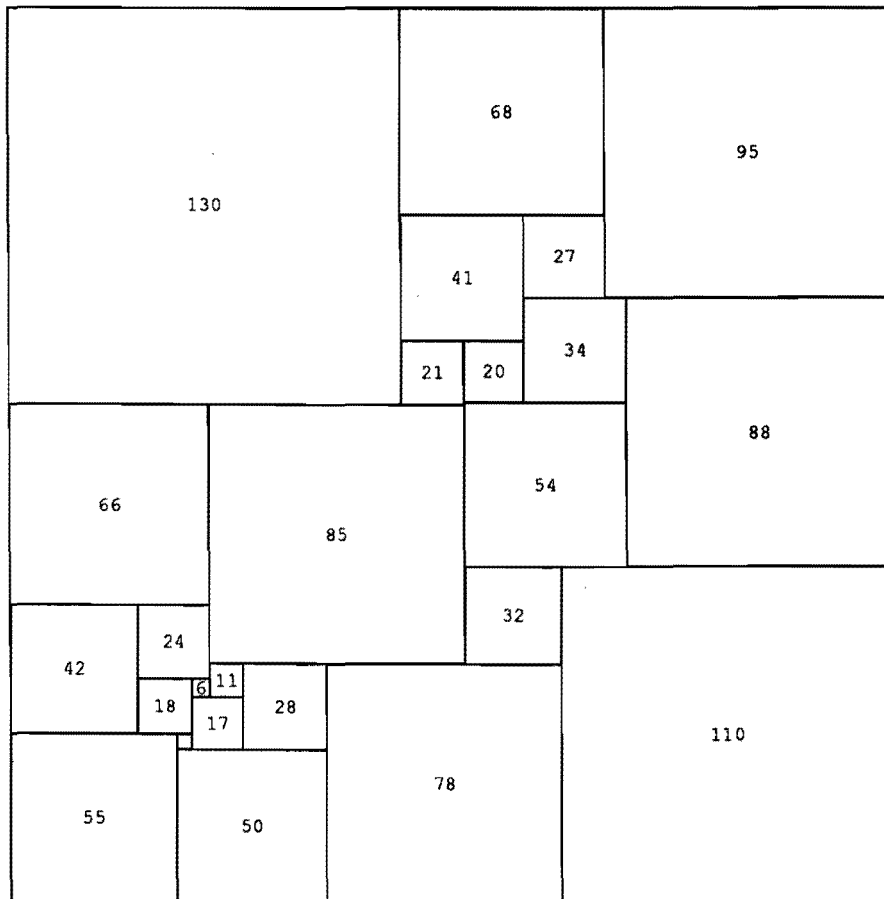
Order: 25

Reduced side: 293

Elements: 5, 6, 11, 17, 18, 20, 21, 24, 27, 28, 32, 34, 41, 42, 50, 54, 55, 66, 68, 78, 85, 88, 95, 110, 130

Code: (130, 68, 95) (41, 27) (34, 88) (21, 20) (54) (66, 85) (32, 110) (42, 24) (11, 28, 78) (18, 6) (17) (55, 5) (50)
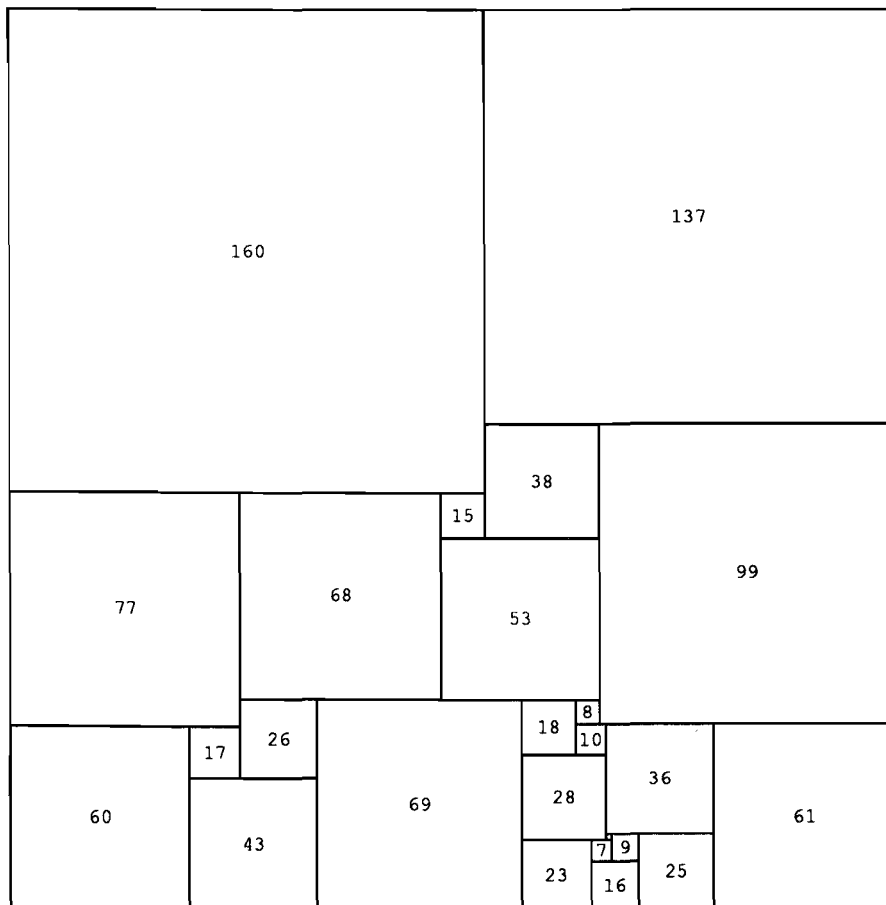
Order: 25

Reduced side: 297

Elements: 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 25, 26, 28, 36, 38, 43, 53, 60, 61, 68, 69, 77, 99, 137, 160

Code: (160, 137) (38, 99) (77, 68, 15) (53) (26, 69, 18, 8) (10, 36, 61) (60, 17) (28) (43) (2, 9, 25) (23, 7) (16)
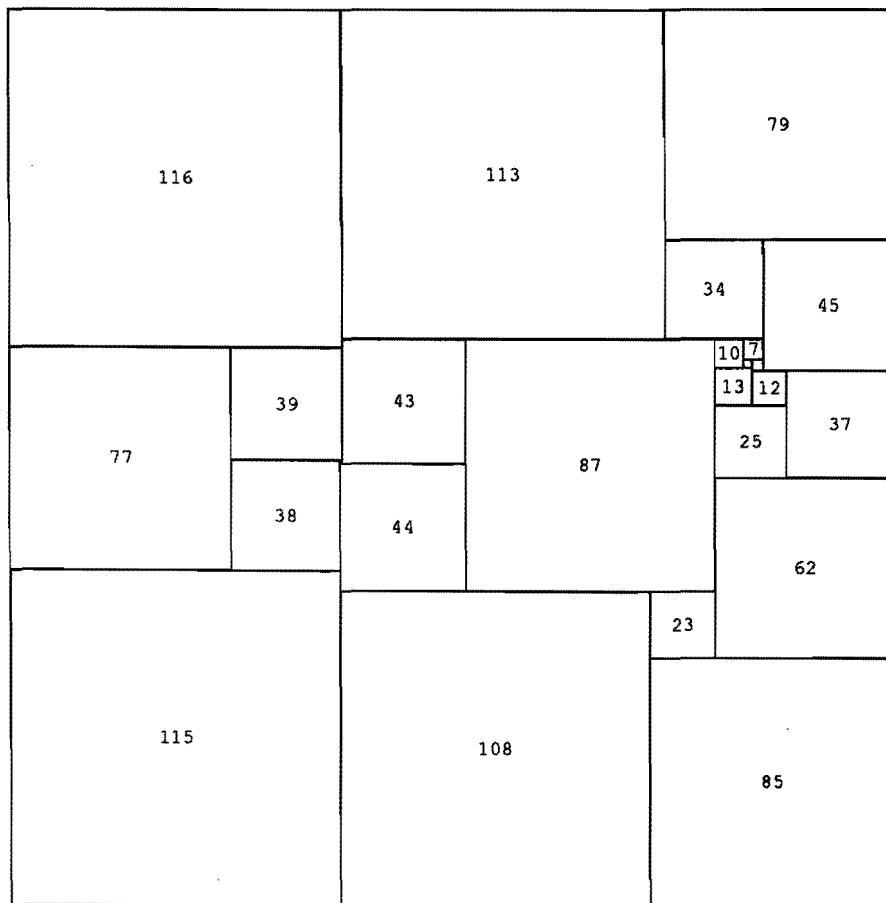
Order: 25

Reduced side: 308

Elements: 1, 3, 4, 7, 10, 12, 13, 23, 25, 34, 37, 38, 39, 43, 44, 45, 62, 77, 79, 85, 87, 108, 113, 115, 116

Code: (116, 113, 79) (34, 45) (43, 87, 10, 7) (77, 39) (3, 4) (13) (12, 37) (25) (38, 1) (44) (62) (115) (108, 23) (85)
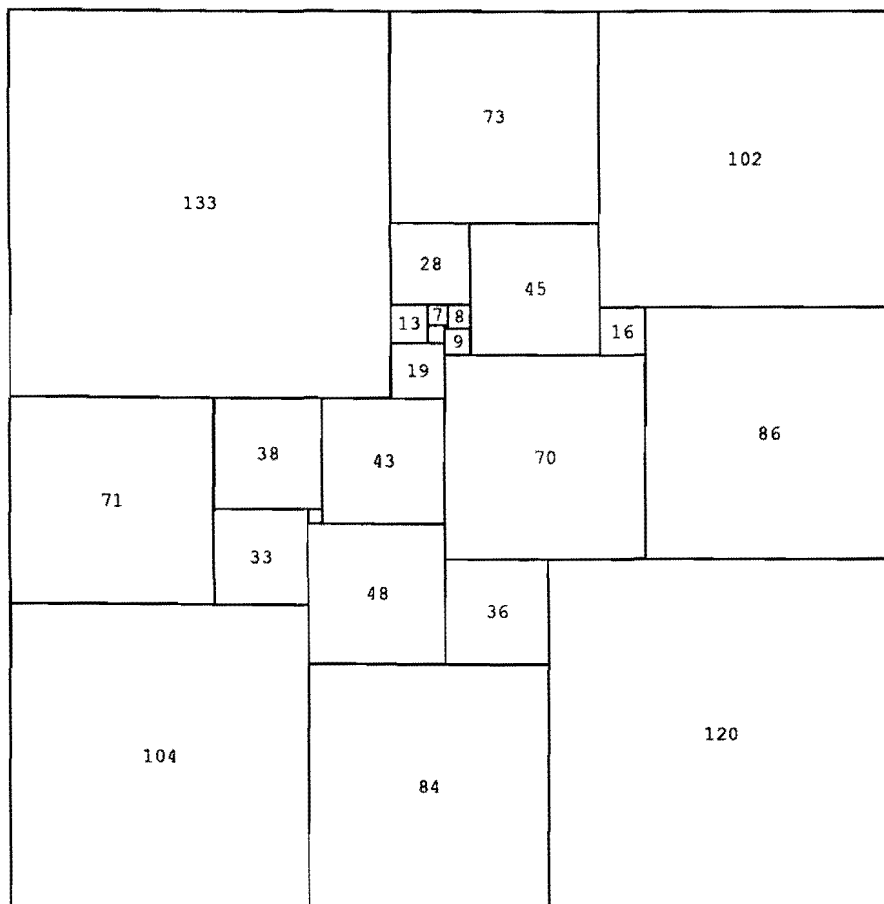
Order: 25

Reduced side: 308

Elements: 1, 5, 6, 7, 8, 9, 13, 16, 19, 28, 33, 36, 38, 43, 45, 48, 70, 71, 73, 84, 86, 102, 104, 120, 133

Code: (133, 73, 102) (28, 45) (13, 7, 8) (16, 86) (6, 1) (9) (19) (70) (71, 38, 43) (33, 5) (48) (36, 120) (104) (84)
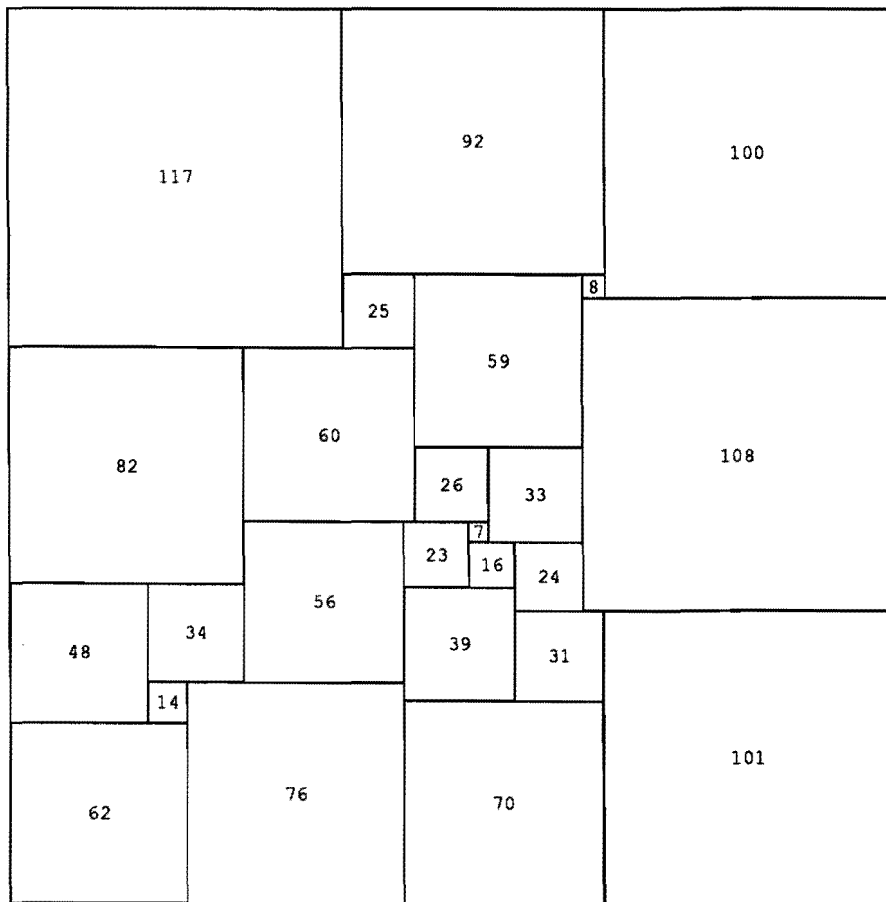
Order: 25

Reduced side: 309

Elements: 7, 8, 14, 16, 23, 24, 25, 26, 31, 33, 34, 39, 48, 56, 59, 60, 62, 70, 76, 82, 92, 100, 101, 108, 117

Code: (117, 92, 100) (25, 59, 8) (108) (82, 60) (26, 33) (56, 23, 7) (16, 24) (48, 34) (39) (31, 101) (14, 76) (70) (62)
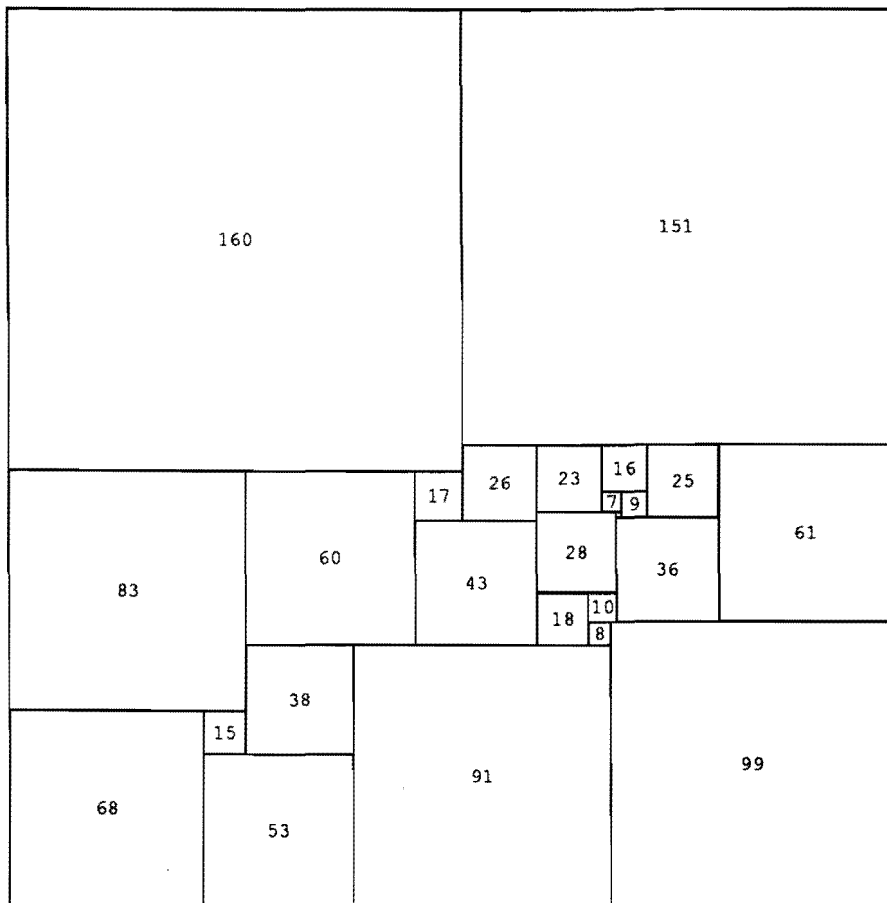
Order: 25

Reduced side: 311

Elements: 2, 7, 8, 9, 10, 15, 16, 17, 18, 23, 25, 26, 28, 36, 38, 43, 53, 60, 61, 68, 83, 91, 99, 151, 160

Code: (160, 151) (26, 23, 16, 25, 61) (83, 60, 17) (7, 9) (28, 2) (36) (43) (18, 10) (8, 99) (38, 91) (68, 15) (53)
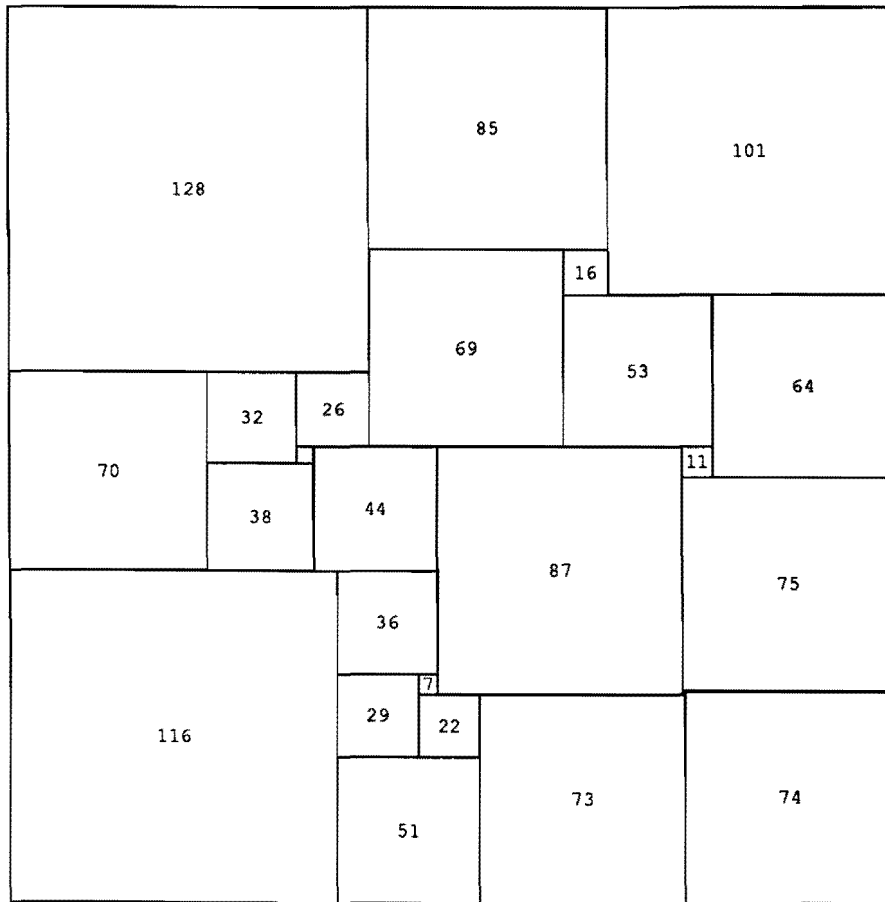
Order: 25

Reduced side: 314

Elements: 1, 6, 7, 11, 16, 22, 26, 29, 32, 36, 38, 44, 51, 53, 64, 69, 70, 73, 74, 75, 85, 87,
                101, 116, 128

Code: (128, 85, 101) (69, 16) (53, 64) (70, 32, 26) (6, 44, 87, 11) (38) (75) (116, 36)
                (29, 7) (1, 74) (22, 73) (51)
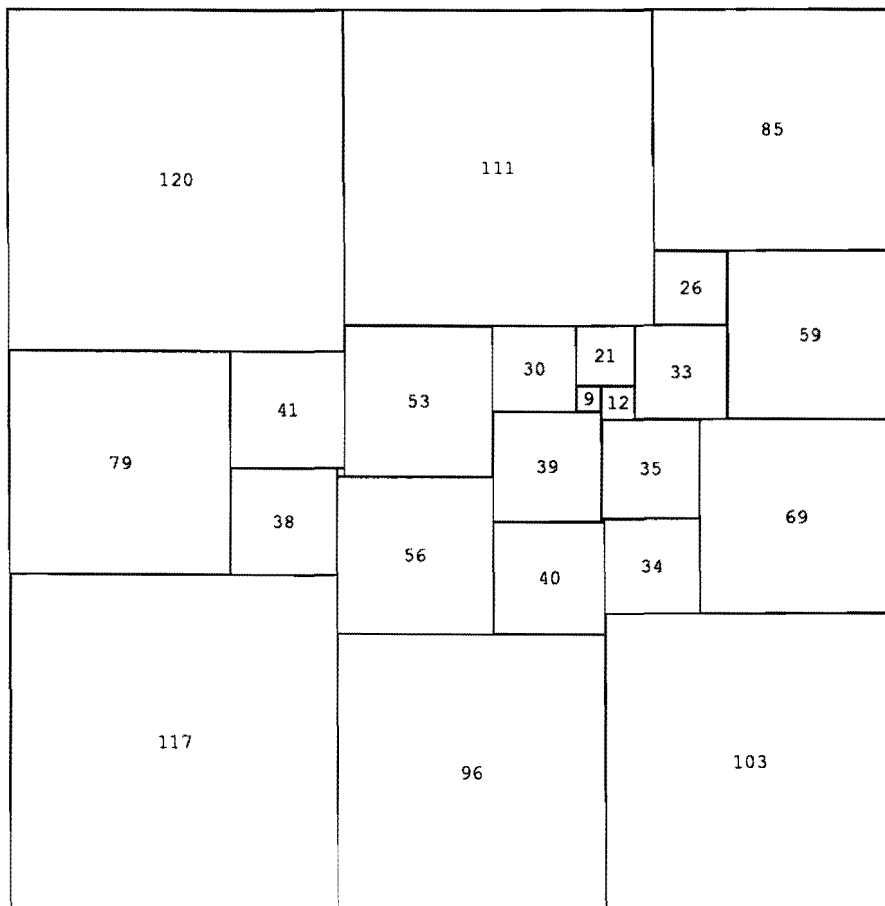
Order: 25

Reduced side: 316

Elements: 1, 3, 9, 12, 21, 26, 30, 33, 34, 35, 38, 39, 40, 41, 53, 56, 59, 69, 79, 85, 96, 103, 111, 117, 120

Code: (120, 111, 85) (26, 59) (53, 30, 21, 33) (79, 41) (9, 12) (39) (35, 69) (38, 3) (56) (1, 34) (40) (117) (103) (96)
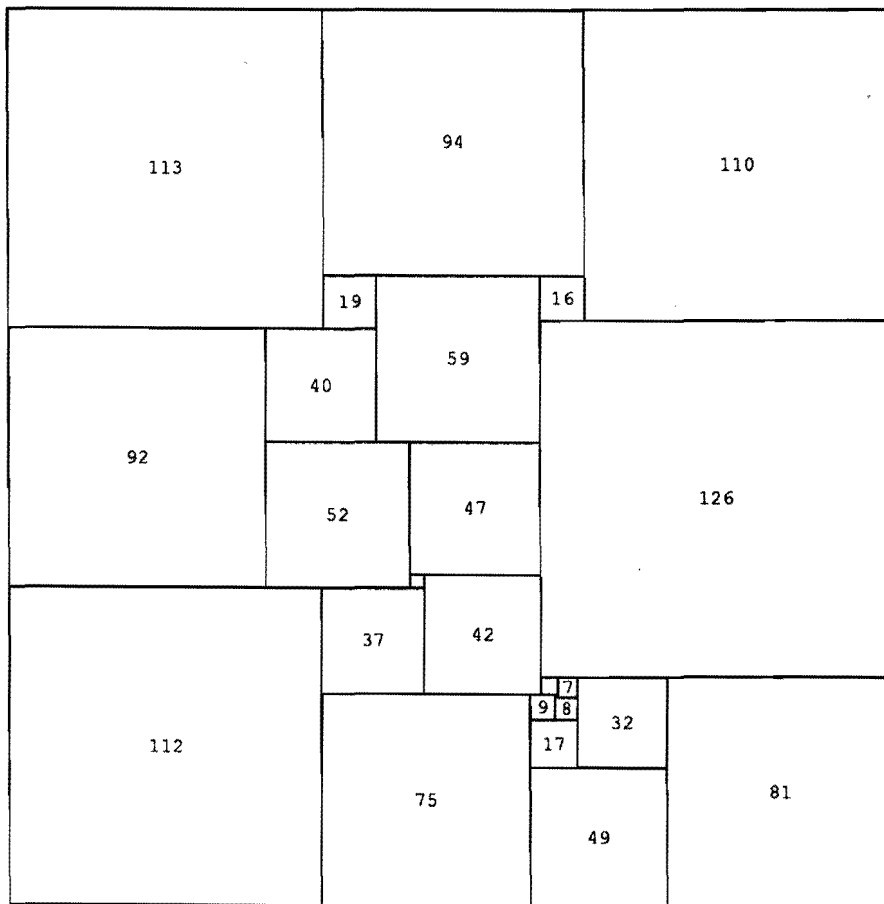
Order: 25

Reduced side: 317

Elements: 1, 5, 6, 7, 8, 9, 16, 17, 19, 32, 37, 40, 42, 47, 49, 52, 59, 75, 81, 92, 94, 110, 112, 113, 126

Code: (113, 94, 110) (19, 59, 16) (126) (92, 40) (52, 47) (5, 42) (112, 37) (6, 7, 32, 81) (75, 9, 1) (8) (17) (49)
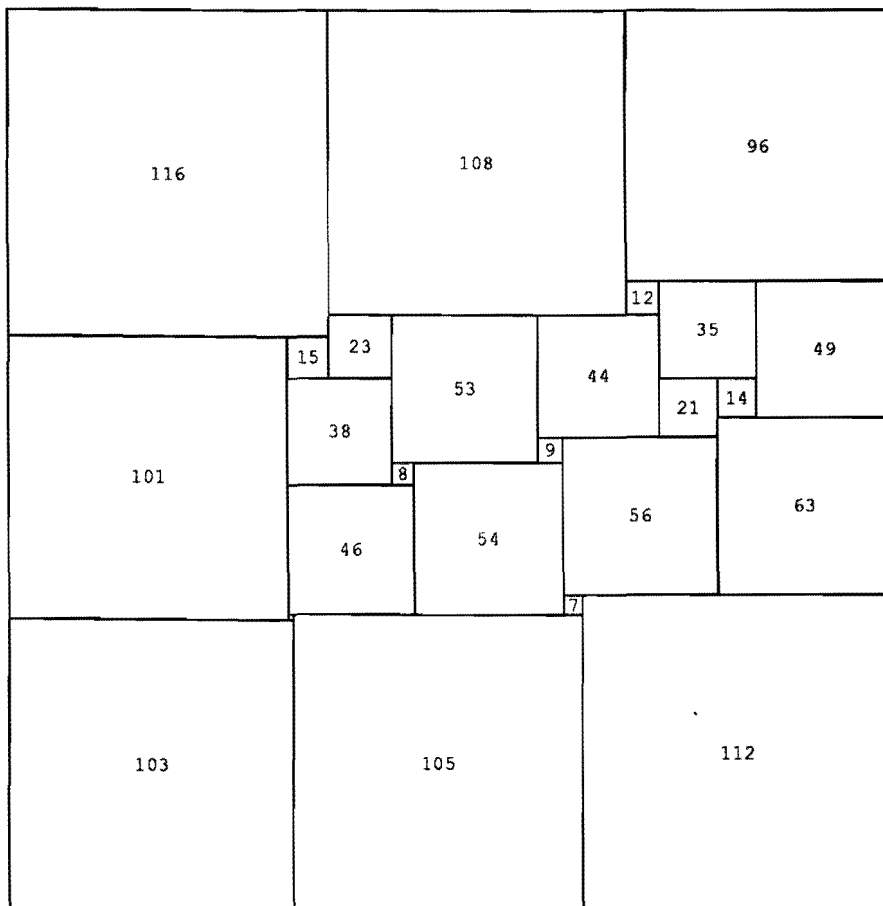
Order: 25

Reduced side: 320

Elements: 2, 7, 8, 9, 12, 14, 15, 21, 23, 35, 38, 44, 46, 49, 53, 54, 56, 63, 96, 101, 103, 105, 108, 112, 116

Code: (116, 108, 96) (12, 35, 49) (23, 53, 44) (101, 15) (38) (21, 14) (63) (9, 56) (8, 54) (46) (7, 112) (2, 105) (103)
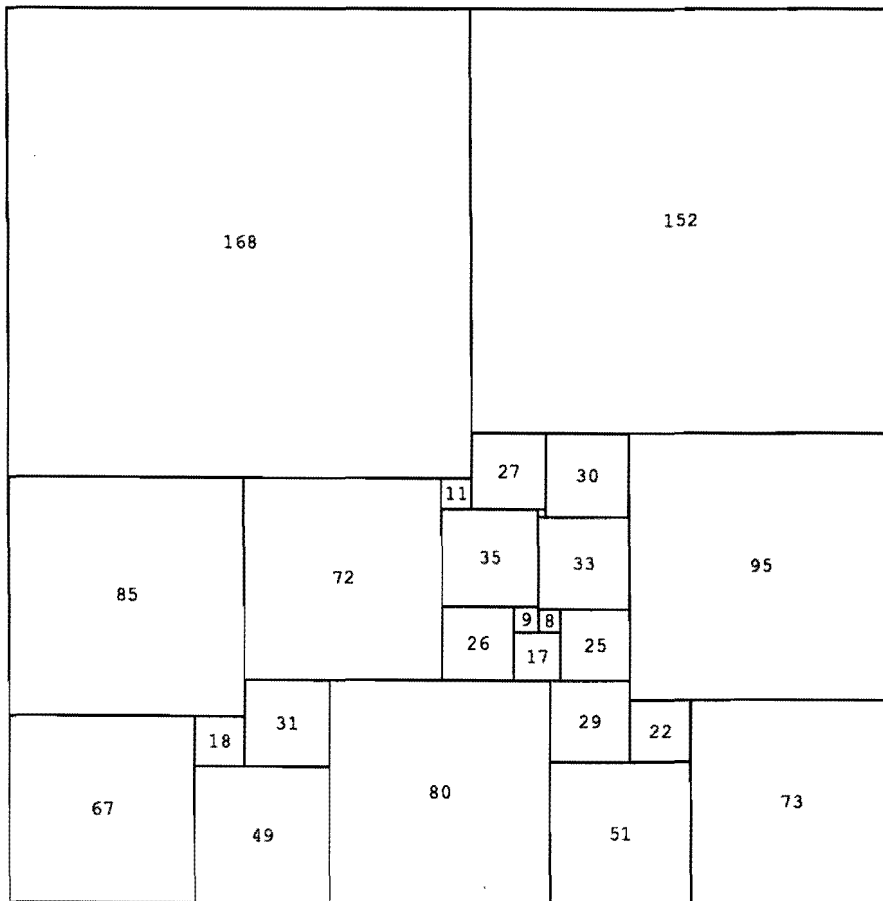
Order: 25

Reduced side: 320

Elements: 3, 8, 9, 11, 17, 18, 22, 25, 26, 27, 29, 30, 31, 33, 35, 49, 51, 67, 72, 73, 80, 85, 95, 152, 168

Code: (168, 152) (27, 30, 95) (85, 72, 11) (35, 3) (33) (26, 9) (8, 25) (17) (31, 80, 29) (22, 73) (67, 18) (51) (49)
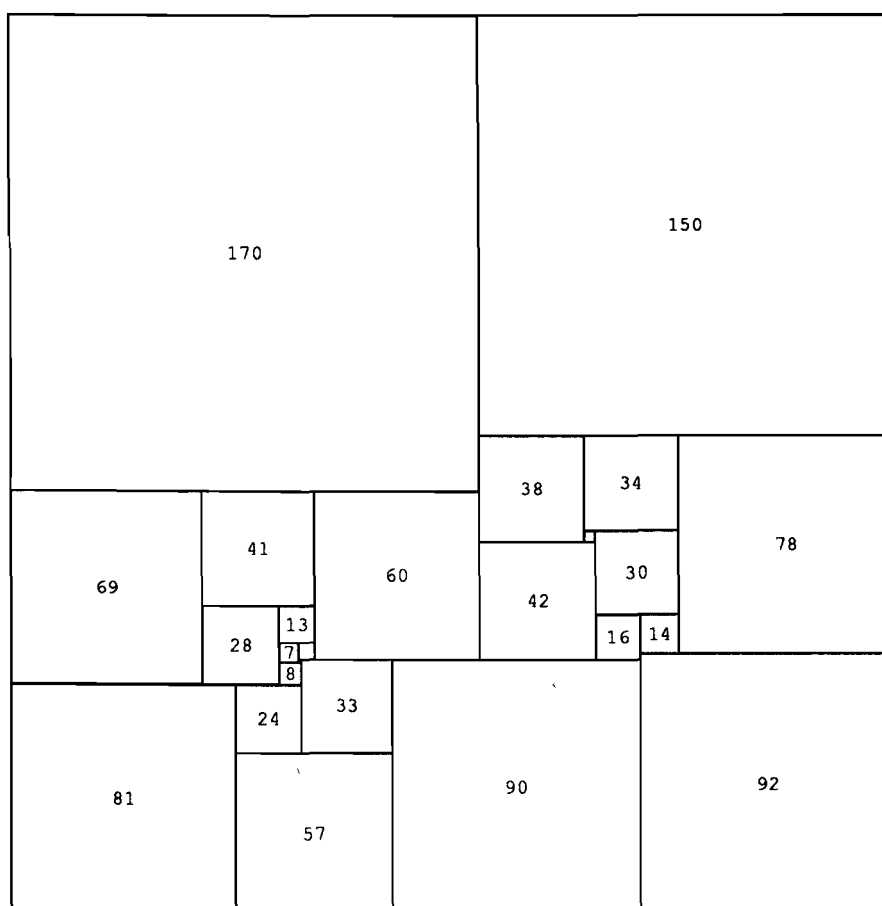
Order: 25

Reduced side: 320

Elements: 1, 4, 6, 7, 8, 13, 14, 16, 24, 28, 30, 33, 34, 38, 41, 42, 57, 60, 69, 78, 81, 90, 92, 150, 170

Code: (170, 150) (38, 34, 78) (69, 41, 60) (4, 30) (42) (28, 13) (16, 14) (7, 6) (92) (1, 33, 90) (8) (81, 24) (57)
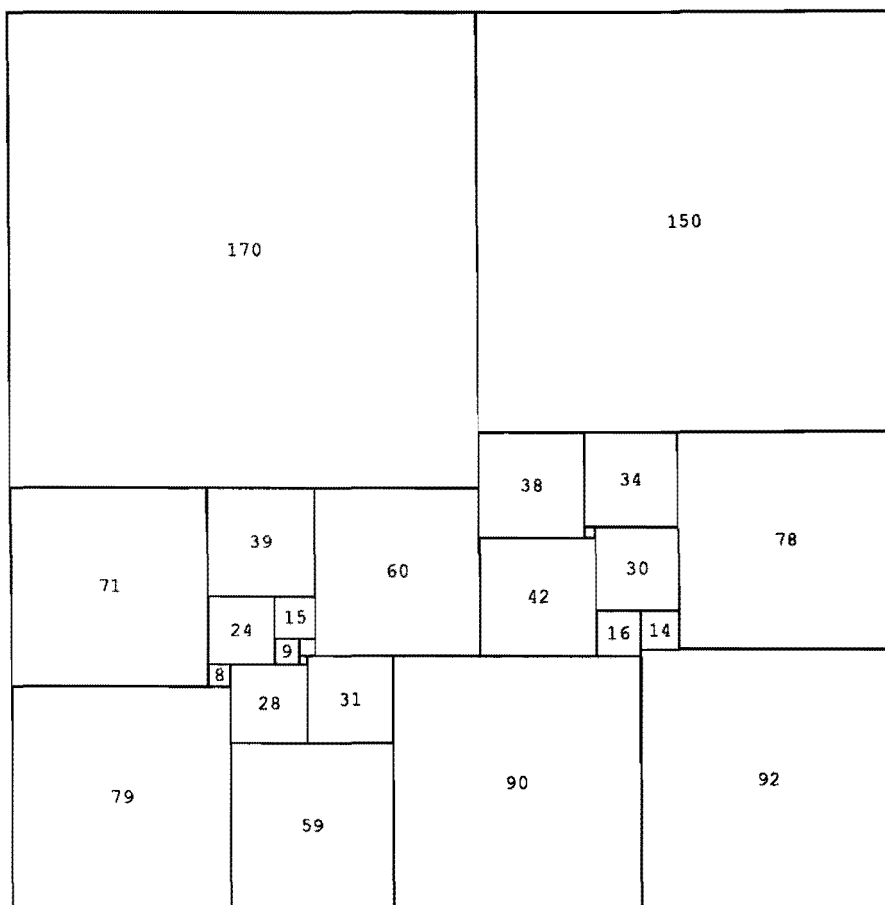
Order: 25

Reduced side: 320

Elements: 3, 4, 6, 8, 9, 14, 15, 16, 24, 28, 30, 31, 34, 38, 39, 42, 59, 60, 71, 78, 79, 90, 92, 150, 170

Code: (170, 150) (38, 34, 78) (71, 39, 60) (4, 30) (42) (24, 15) (16, 14) (9, 6) (92) (3, 31, 90) (8, 28) (79) (59)
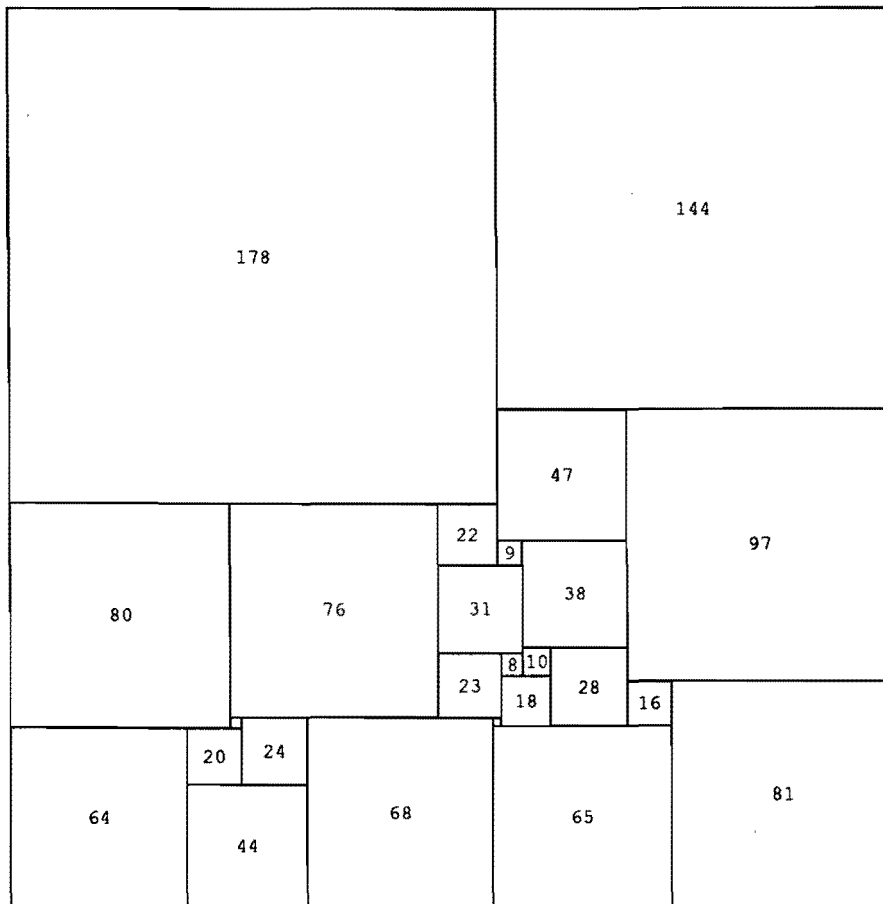
Order: 25

Reduced side: 322

Elements: 3, 4, 8, 9, 10, 16, 18, 20, 22, 23, 24, 28, 31, 38, 44, 47, 64, 65, 68, 76, 80, 81, 97, 144, 178

Code: (178, 144) (47, 97) (80, 76, 22) (9, 38) (31) (10, 28) (23, 8) (18) (16, 81) (4, 24, 68, 3) (65) (64, 20) (44)
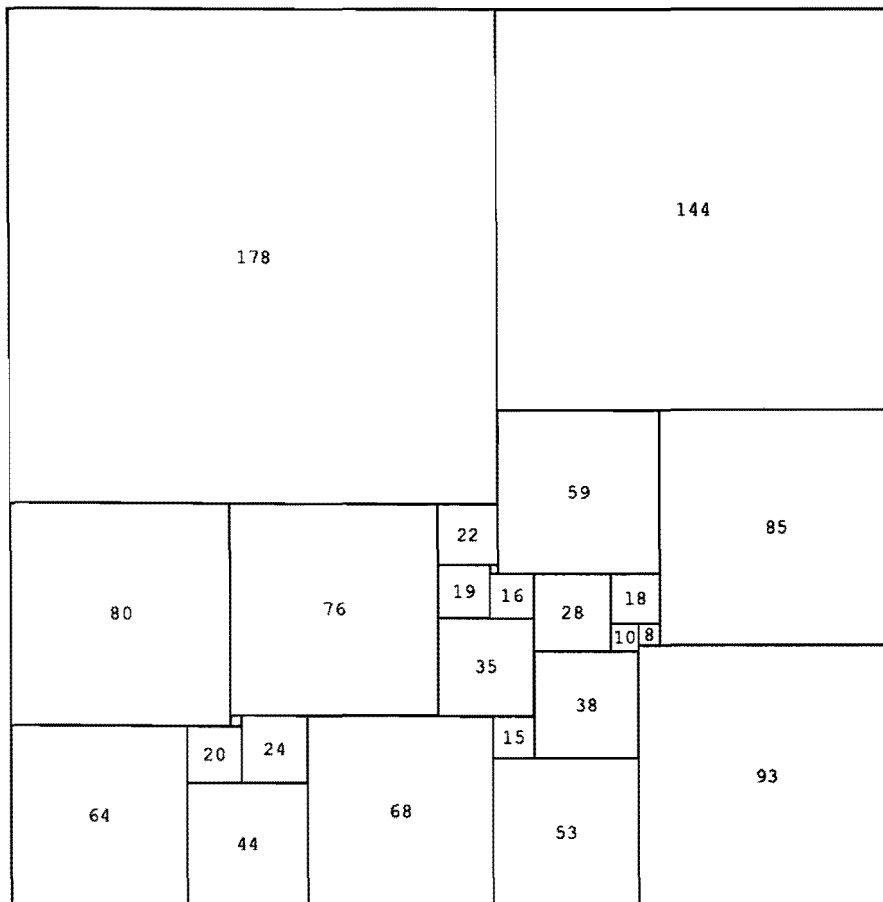
Order: 25

Reduced side: 322

Elements: 3, 4, 8, 10, 15, 16, 18, 19, 20, 22, 24, 28, 35, 38, 44, 53, 59, 64, 68, 76, 80, 85, 93, 144, 178

Code: (178, 144) (59, 85) (80, 76, 22) (19, 3) (16, 28, 18) (35) (10, 8) (93) (38) (4, 24, 68, 15) (64, 20) (53) (44)
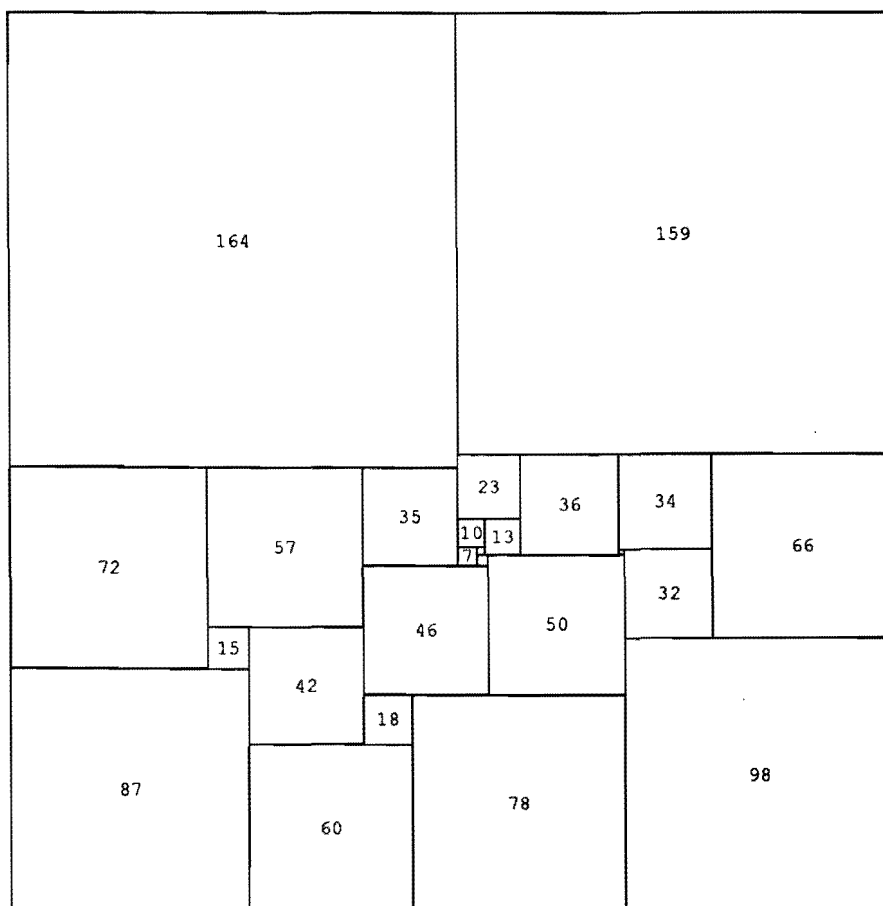
Order: 25

Reduced side: 323

Elements: 2, 3, 4, 7, 10, 13, 15, 18, 23, 32, 34, 35, 36, 42, 46, 50, 57, 60, 66, 72, 78, 87,
                 98, 159, 164

Code: (164, 159) (23, 36, 34, 66) (72, 57, 35) (10, 13) (7, 3) (2, 32) (4, 50) (46) (15,
                 42) (98) (87) (18, 78) (60)
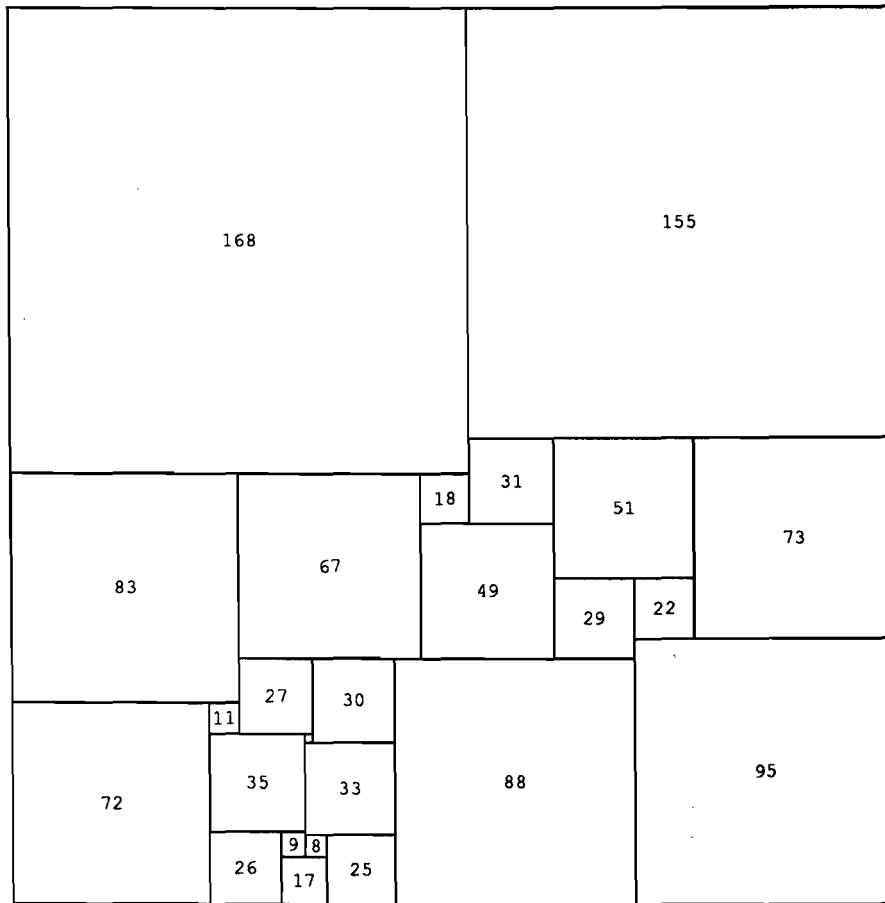
Order: 25

Reduced side: 323

Elements: 3, 8, 9, 11, 17, 18, 22, 25, 26, 27, 29, 30, 31, 33, 35, 49, 51, 67, 72, 73, 83, 88, 95, 155, 168

Code: (168, 155) (31, 51, 73) (83, 67, 18) (49) (29, 22) (95) (27, 30, 88) (72, 11) (35, 3) (33) (26, 9) (8, 25) (17)
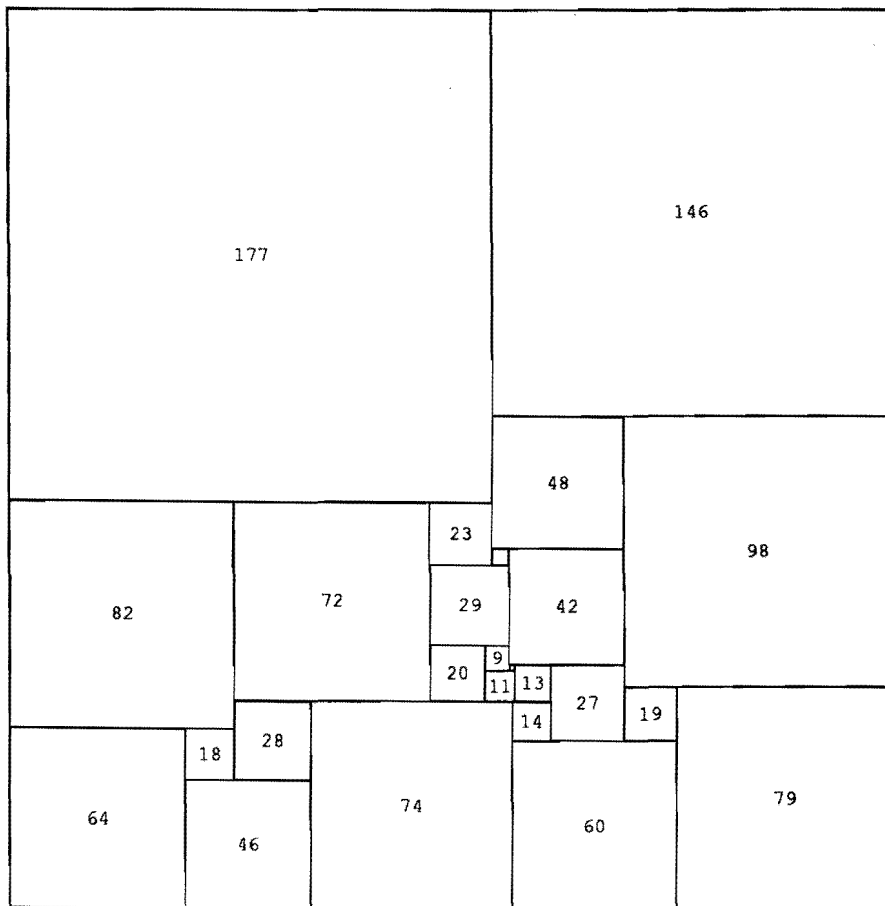
Order: 25

Reduced side: 323

Elements: 2, 6, 9, 11, 13, 14, 18, 19, 20, 23, 27, 28, 29, 42, 46, 48, 60, 64, 72, 74, 79, 82, 98, 146, 177

Code: (177, 146) (48, 98) (82, 72, 23) (6, 42) (29) (20, 9) (2, 13, 27) (11) (19, 79) (28, 74, 14) (64, 18) (60) (46)
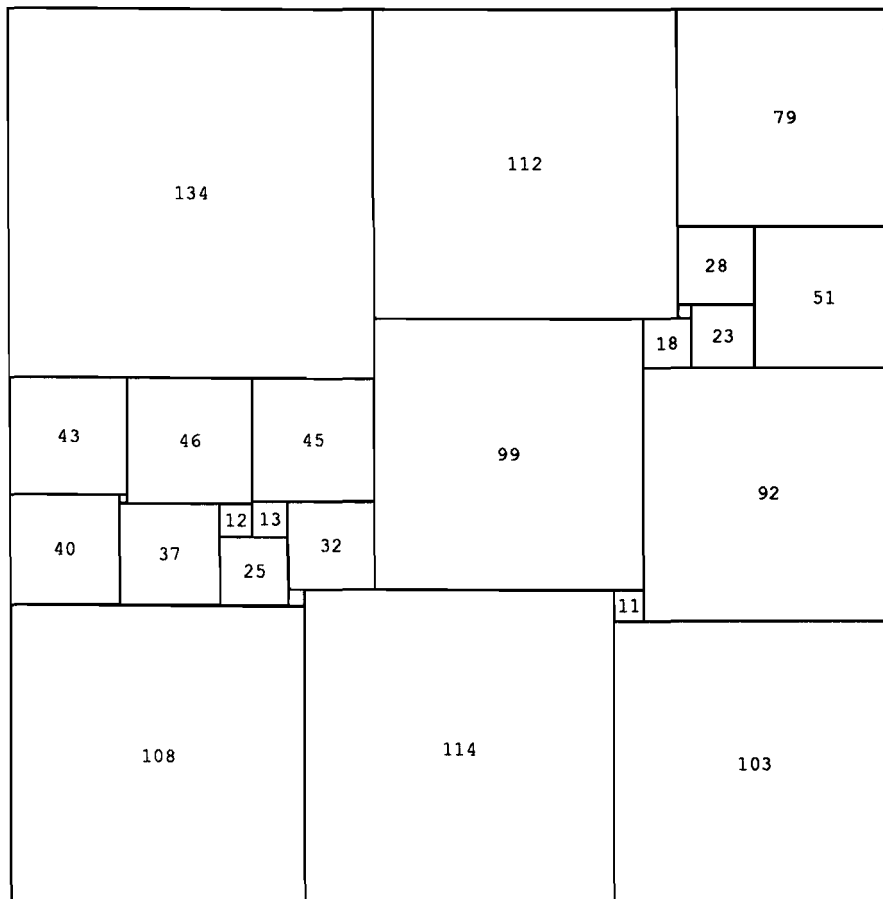
Order: 25

Reduced side: 325

Elements: 3, 5, 6, 11, 12, 13, 18, 23, 25, 28, 32, 37, 40, 43, 45, 46, 51, 79, 92, 99, 103, 108, 112, 114, 134

Code: (134, 112, 79) (28, 51) (5, 23) (99, 18) (92) (43, 46, 45) (40, 3) (13, 32) (37, 12) (25) (6, 114, 11) (108) (103)
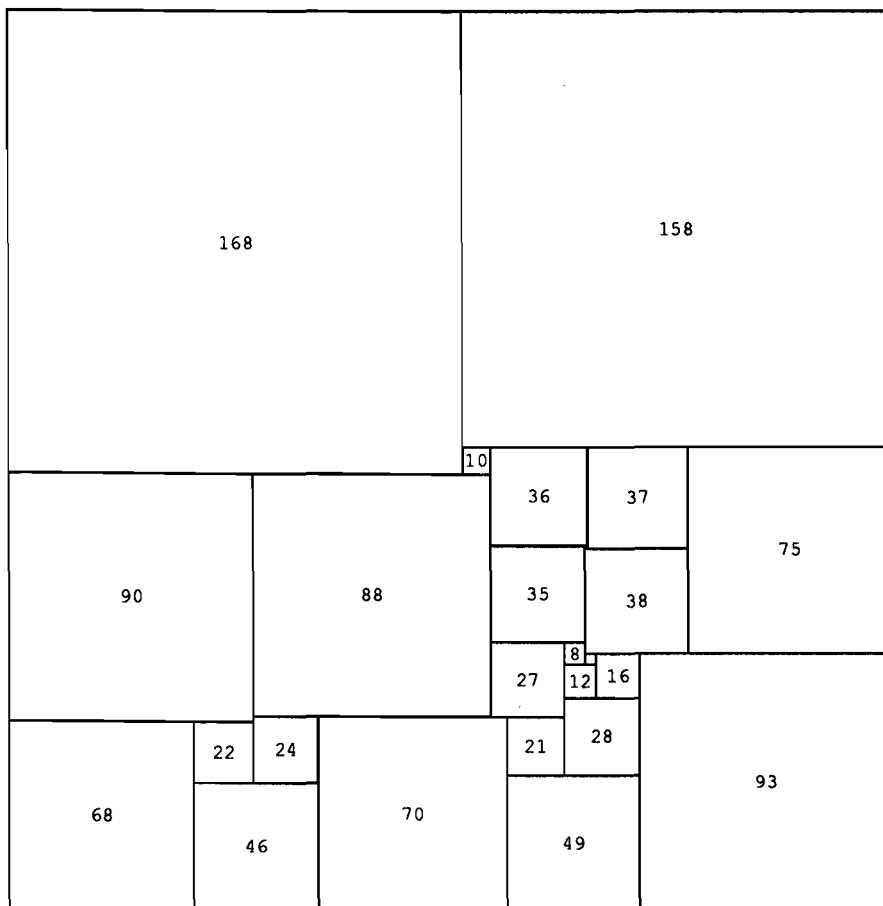
Order: 25

Reduced side: 326

Elements: 1, 4, 8, 10, 12, 16, 21, 22, 24, 27, 28, 35, 36, 37, 38, 46, 49, 68, 70, 75, 88, 90, 93, 158, 168

Code: (168, 158) (10, 36, 37, 75) (90, 88) (35, 1) (38) (27, 8) (4, 16, 93) (12) (28) (24, 70, 21) (68, 22) (49) (46)
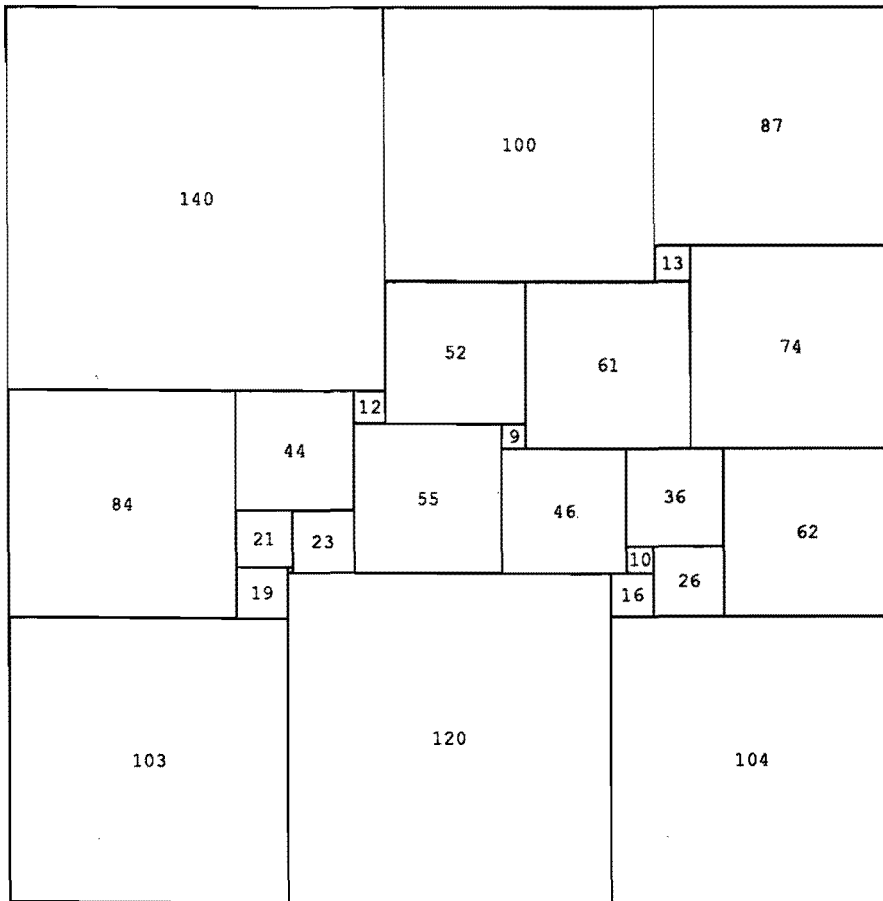
Order: 25

Reduced side: 327

Elements: 2, 9, 10, 12, 13, 16, 19, 21, 23, 26, 36, 44, 46, 52, 55, 61, 62, 74, 84, 87, 100, 103, 104, 120, 140

Code: (140, 100, 87) (13, 74) (52, 61) (84, 44, 12) (55, 9) (46, 36, 62) (21, 23) (10, 26) (19, 2) (120, 16) (104) (103)
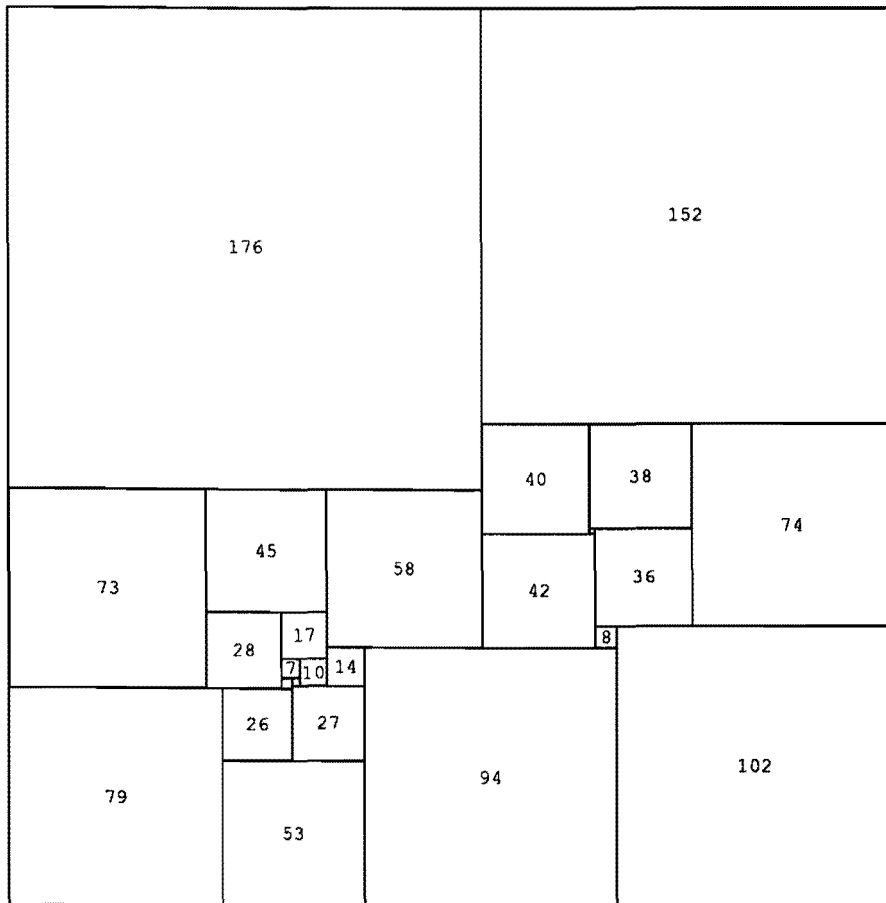
Order: 25

Reduced side: 328

Elements: 2, 3, 4, 7, 8, 10, 14, 17, 26, 27, 28, 36, 38, 40, 42, 45, 53, 58, 73, 74, 79, 94,
                102, 152, 176

Code: (176, 152) (40, 38, 74) (73, 45, 58) (2, 36) (42) (28, 17) (8, 102) (14, 94) (7,
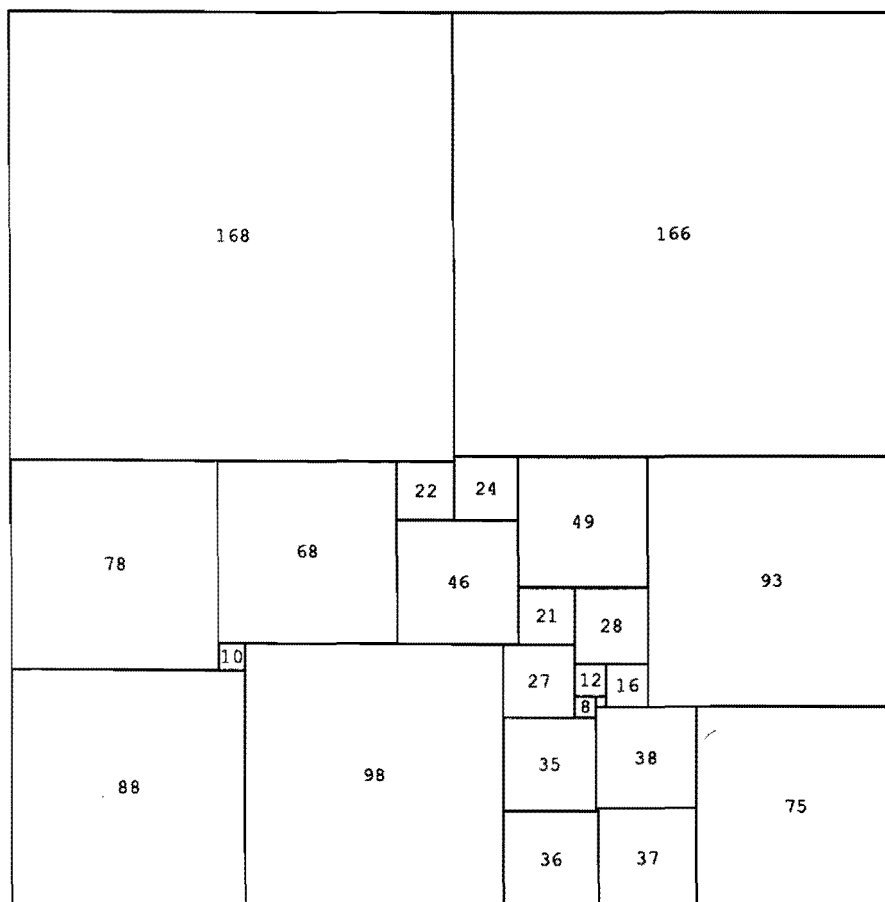   10) (4, 3) (27) (79, 26) (53)

Order: 25

Reduced side: 334

Elements: 1, 4, 8, 10, 12, 16, 21, 22, 24, 27, 28, 35, 36, 37, 38, 46, 49, 68, 75, 78, 88, 93, 98, 166, 168

Code: (168, 166) (24, 49, 93) (78, 68, 22) (46) (21, 28) (10, 98, 27) (12, 16) (88) (8, 4) (38, 75) (35) (1, 37) (36)
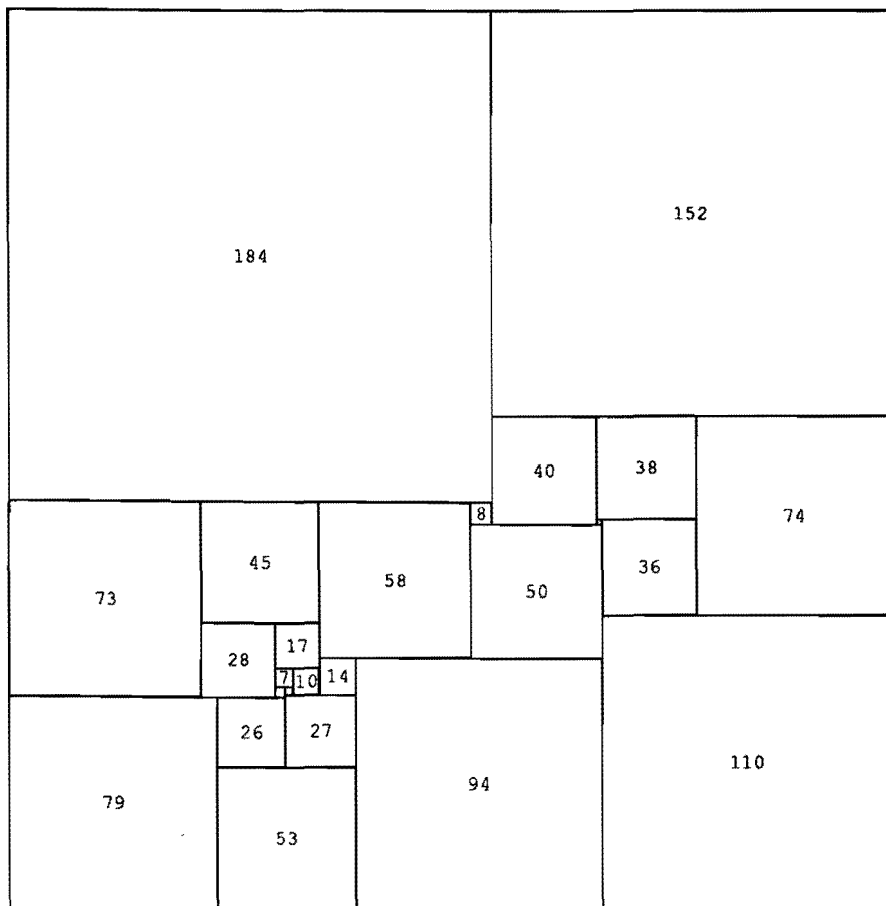
Order: 25

Reduced side: 336

Elements: 2, 3, 4, 7, 8, 10, 14, 17, 26, 27, 28, 36, 38, 40, 45, 50, 53, 58, 73, 74, 79, 94, 110, 152, 184

Code: (184, 152) (40, 38, 74) (73, 45, 58, 8) (2, 36) (50) (110) (28, 17) (14, 94) (7, 10) (4, 3) (27) (79, 26) (53)
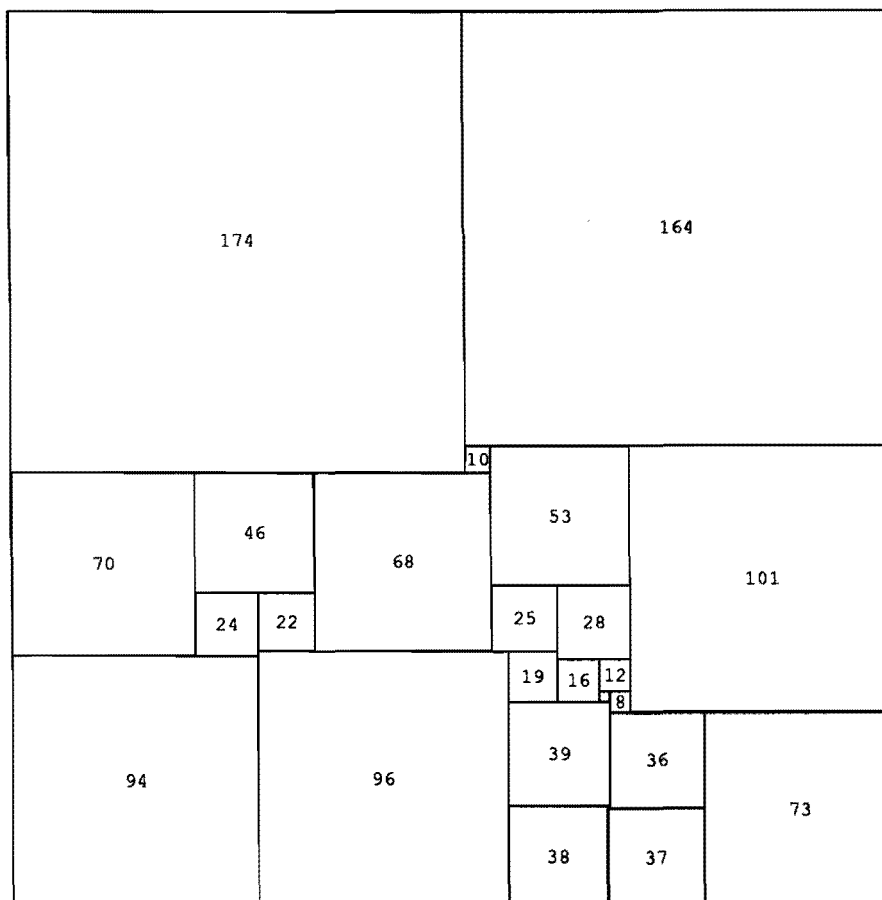
Order: 25

Reduced side: 338

Elements: 1, 4, 8, 10, 12, 16, 19, 22, 24, 25, 28, 36, 37, 38, 39, 46, 53, 68, 70, 73, 94, 96,
                101, 164, 174

Code: (174, 164) (10, 53, 101) (70, 46, 68) (25, 28) (24, 22) (96, 19) (94) (16, 12)
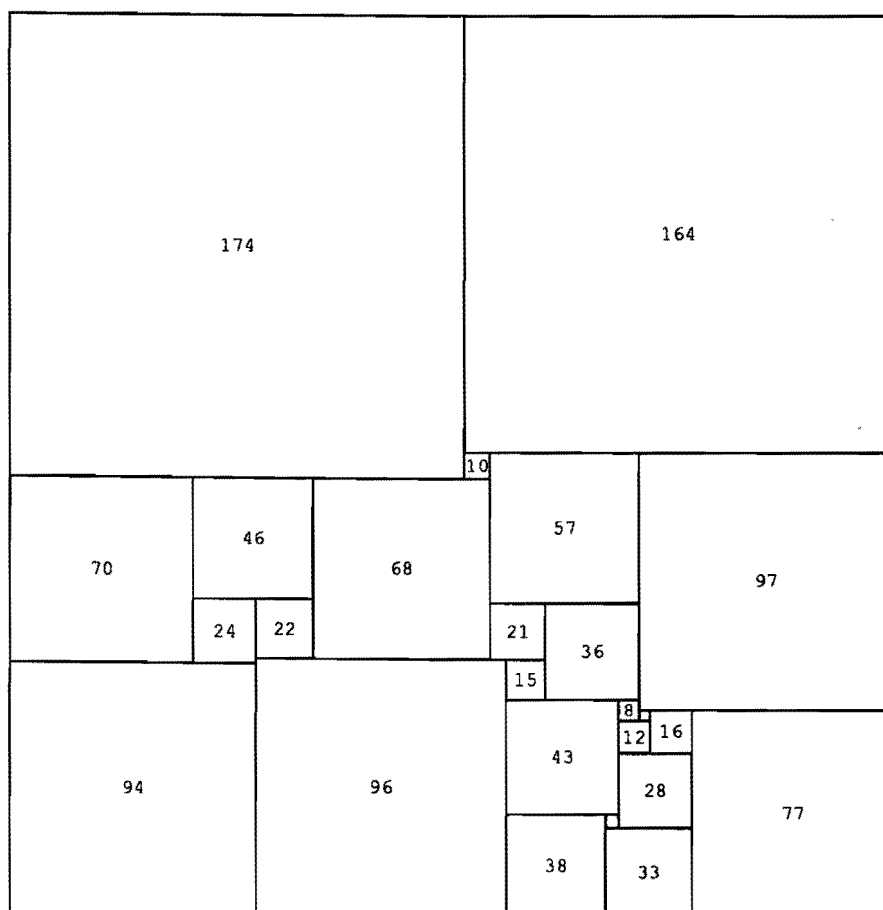   (4, 8) (39) (36, 73) (38, 1) (37)

Order: 25

Reduced side: 338

Elements: 4, 5, 8, 10, 12, 15, 16, 21, 22, 24, 28, 33, 36, 38, 43, 46, 57, 68, 70, 77, 94, 96, 97, 164, 174

Code: (174, 164) (10, 57, 97) (70, 46, 68) (24, 22) (21, 36) (96, 15) (94) (43, 8) (4, 16, 77) (12) (28) (38, 5) (33)
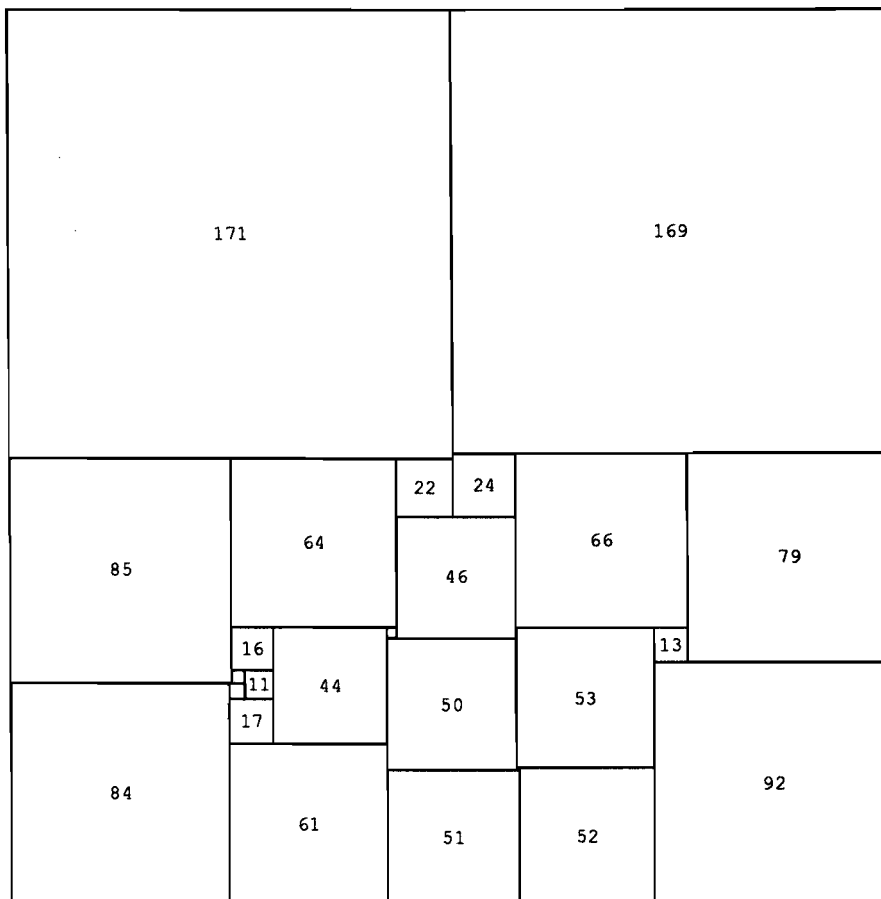
Order: 25

Reduced side: 340

Elements: 1, 4, 5, 6, 11, 13, 16, 17, 22, 24, 44, 46, 50, 51, 52, 53, 61, 64, 66, 79, 84, 85, 92, 169, 171

Code: (171, 169) (24, 66, 79) (85, 64, 22) (46) (16, 44, 4) (53, 13) (50) (92) (5, 11) (84, 6) (17) (61) (1, 52) (51)
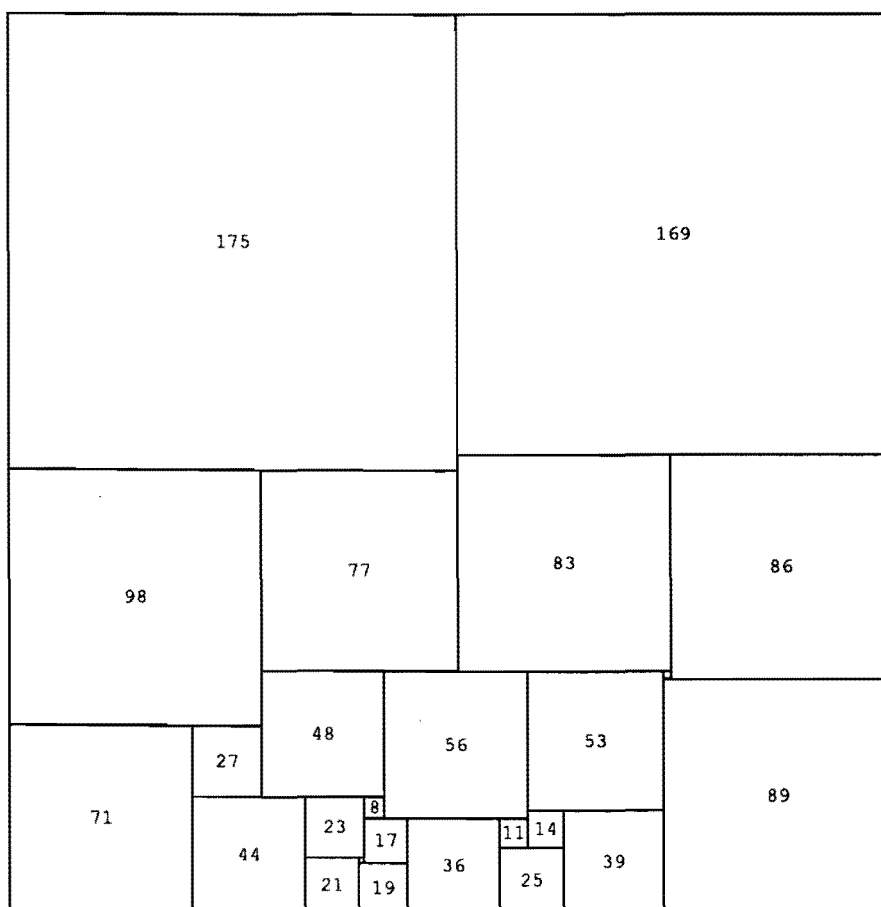
Order: 25

Reduced side: 344

Elements: 2, 3, 8, 11, 14, 17, 19, 21, 23, 25, 27, 36, 39, 44, 48, 53, 56, 71, 77, 83, 86, 89, 98, 169, 175

Code: (175, 169) (83, 86) (98, 77) (48, 56, 53, 3) (89) (71, 27) (44, 23, 8) (14, 39) (17, 36, 11) (25) (21, 2) (19)
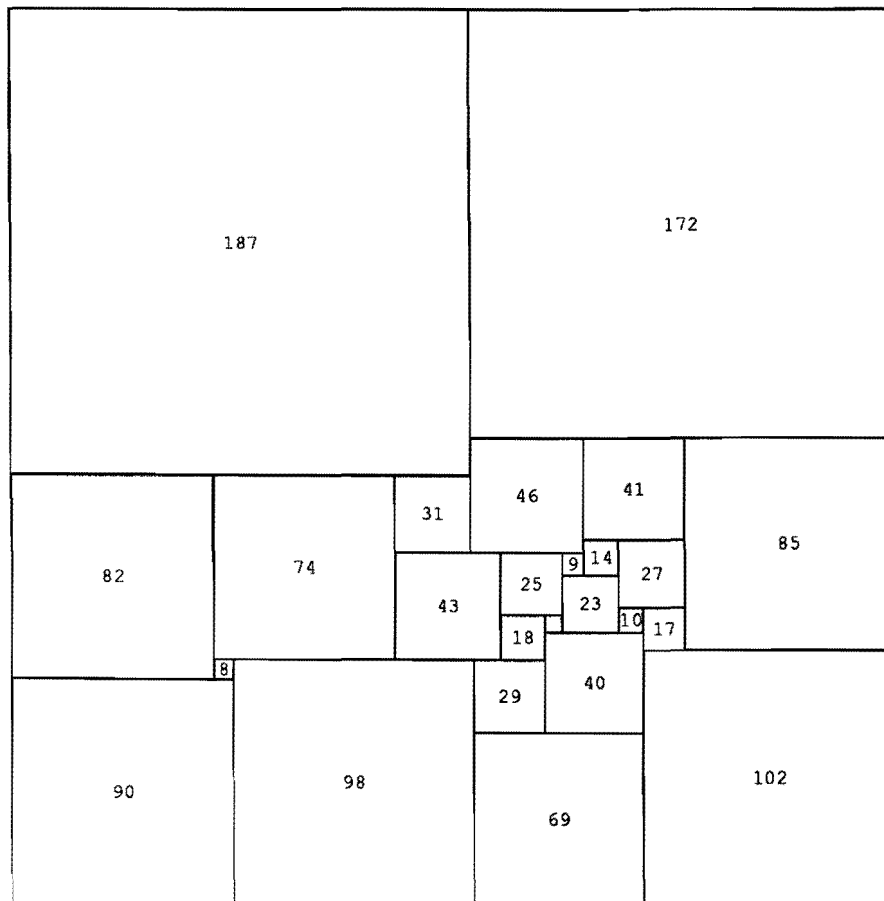
Order: 25

Reduced side: 359

Elements: 7, 8, 9, 10, 14, 17, 18, 23, 25, 27, 29, 31, 40, 41, 43, 46, 69, 74, 82, 85, 90, 98,
                102, 172, 187

Code: (187, 172) (46, 41, 85) (82, 74, 31) (14, 27) (43, 25, 9) (23) (10, 17) (18, 7)
                (40) (102) (8, 98, 29) (90) (69)
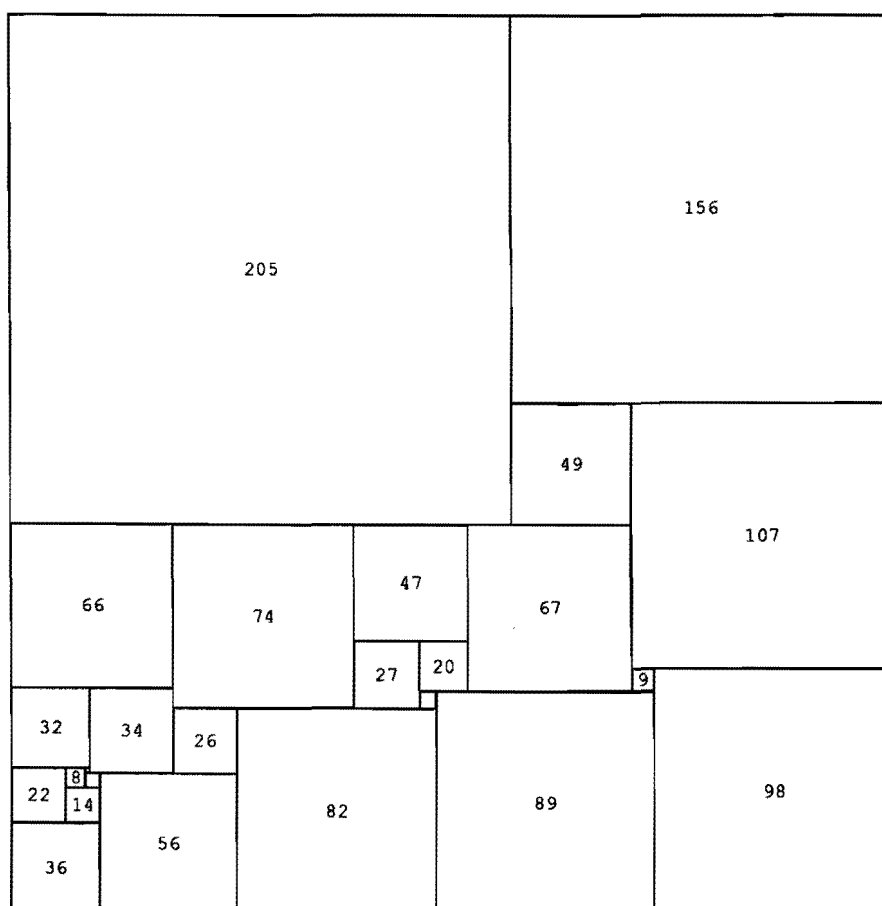
Order: 25

Reduced side: 361

Elements: 2, 6, 7, 8, 9, 14, 20, 22, 26, 27, 32, 34, 36, 47, 49, 56, 66, 67, 74, 82, 89, 98, 107, 156, 205

Code: (205, 156) (49, 107) (66, 74, 47, 67) (27, 20) (9, 98) (32, 34) (7, 89) (26, 82) (22, 8, 2) (6, 56) (14) (36)
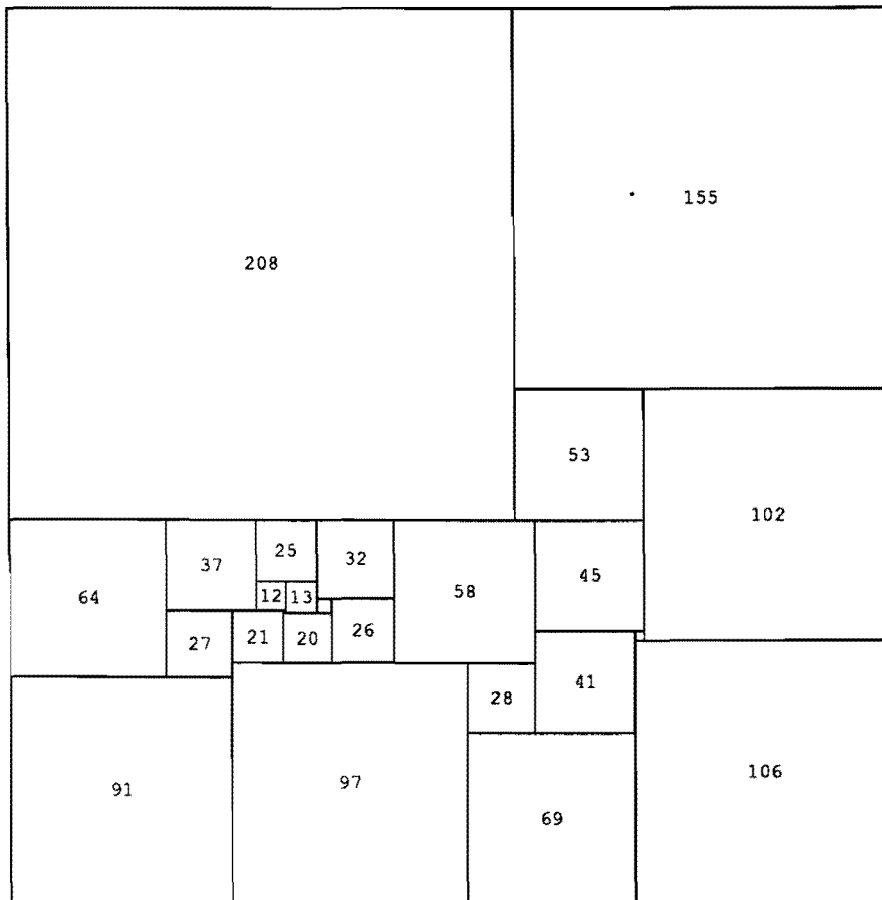
Order: 25

Reduced side: 363

Elements: 1, 4, 6, 12, 13, 20, 21, 25, 26, 27, 28, 32, 37, 41, 45, 53, 58, 64, 69, 91, 97,
                 102, 106, 155, 208

Code: (208, 155) (53, 102) (64, 37, 25, 32, 58, 45) (12, 13) (6, 26) (27, 21, 1) (20)
                 (41, 4) (106) (97, 28) (91) (69)
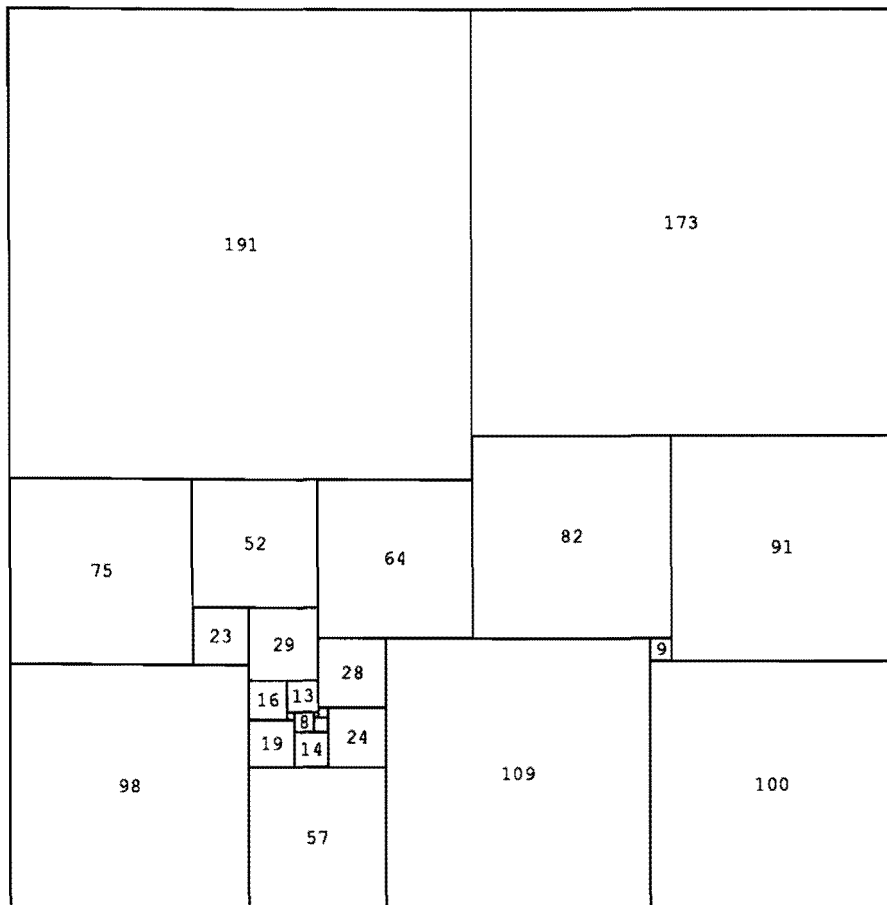
Order: 25

Reduced side: 364

Elements: 2, 3, 4, 6, 8, 9, 13, 14, 16, 19, 23, 24, 28, 29, 52, 57, 64, 75, 82, 91, 98, 100, 109, 173, 191

Code: (191, 173) (82, 91) (75, 52, 64) (23, 29) (28, 109, 9) (100) (98) (16, 13) (4, 24) (3, 8, 2) (6) (19) (14) (57)
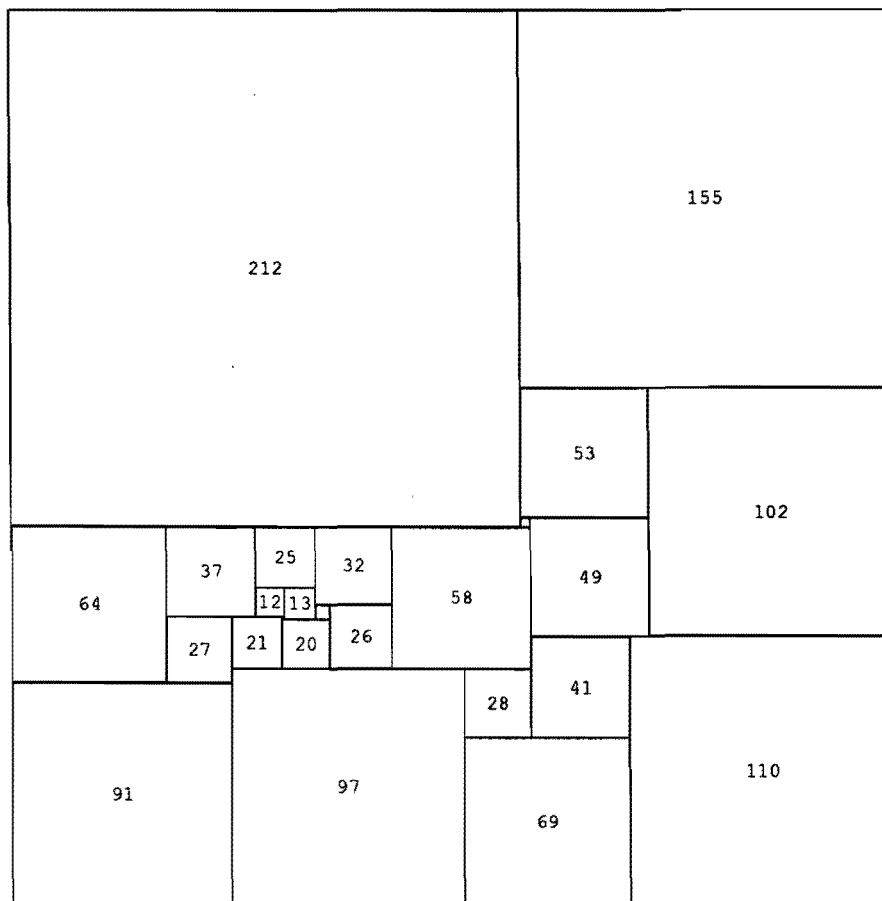
Order: 25

Reduced side: 367

Elements: 1, 4, 6, 12, 13, 20, 21, 25, 26, 27, 28, 32, 37, 41, 49, 53, 58, 64, 69, 91, 97, 102, 110, 155, 212

Code: (212, 155) (53, 102) (4, 49) (64, 37, 25, 32, 58) (12, 13) (6, 26) (27, 21, 1) (20) (41, 110) (97, 28) (91) (69)
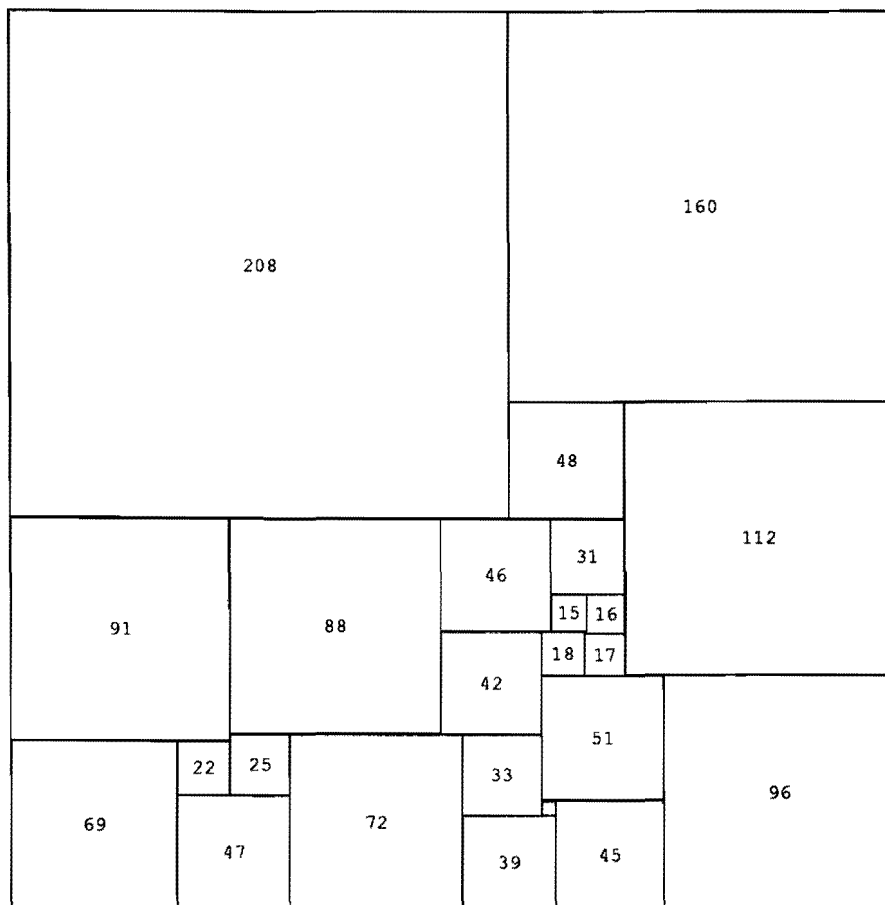
Order: 25

Reduced side: 368

Elements: 1, 6, 15, 16, 17, 18, 22, 25, 31, 33, 39, 42, 45, 46, 47, 48, 51, 69, 72, 88, 91, 96, 112, 160, 208

Code: (208, 160) (48, 112) (91, 88, 46, 31) (15, 16) (42, 18, 1) (17) (51, 96) (25, 72, 33) (69, 22) (47) (6, 45) (39)
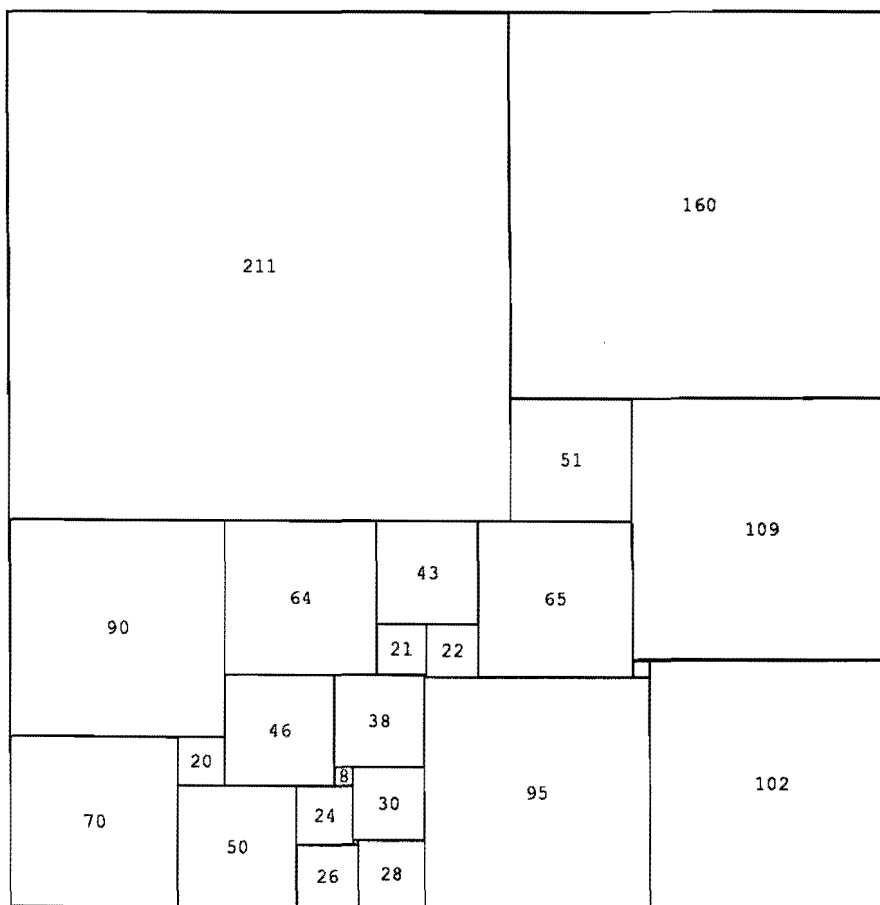
Order: 25

Reduced side: 371

Elements: 1, 2, 7, 8, 20, 21, 22, 24, 26, 28, 30, 38, 43, 46, 50, 51, 64, 65, 70, 90, 95, 102, 109, 160, 211

Code: (211, 160) (51, 109) (90, 64, 43, 65) (21, 22) (7, 102) (46, 38, 1) (95) (70, 20) (8, 30) (50, 24) (2, 28) (26)
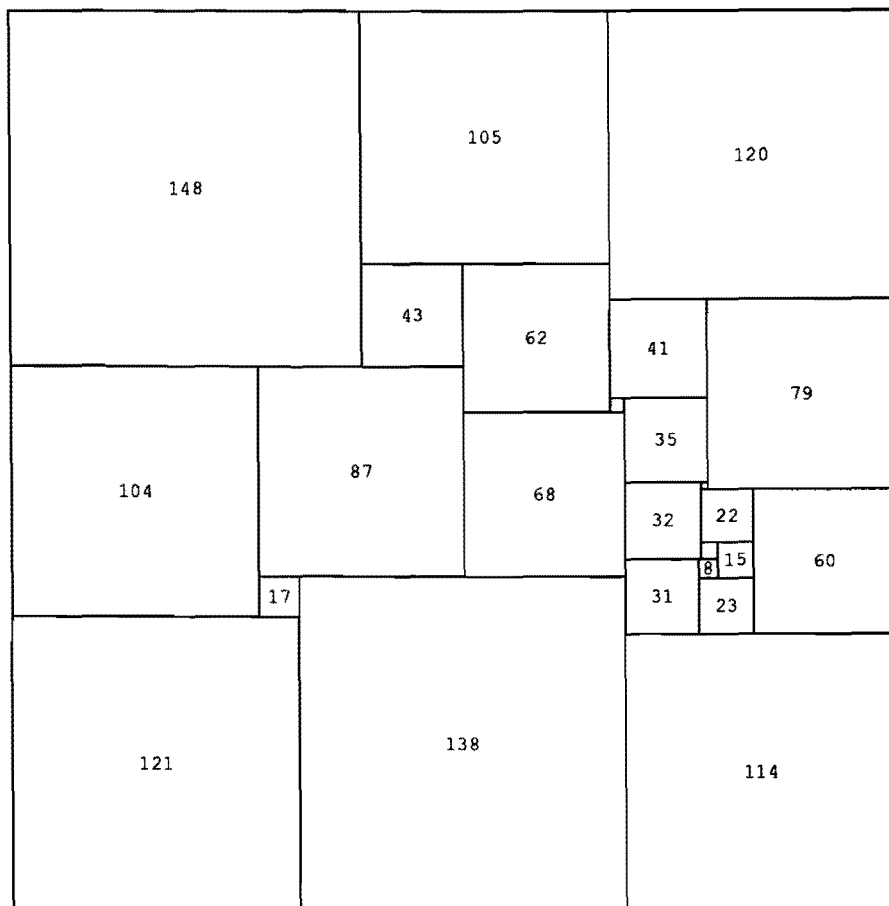
Order: 25

Reduced side: 373

Elements: 3, 6, 7, 8, 15, 17, 22, 23, 31, 32, 35, 41, 43, 60, 62, 68, 79, 87, 104, 105, 114, 120, 121, 138, 148

Code: (148, 105, 120) (43, 62) (41, 79) (104, 87) (6, 35) (68) (32, 3) (22, 60) (7, 15) (31, 8) (17, 138) (23) (121) (114)
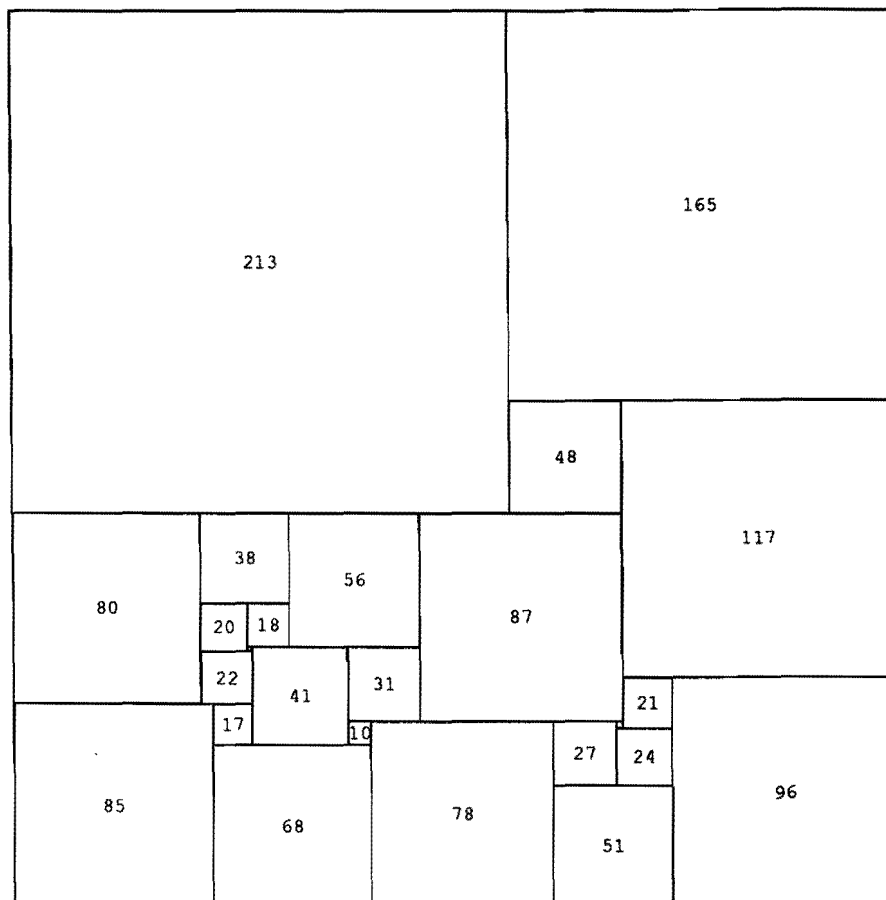
Order: 25

Reduced side: 378

Elements: 2, 3, 10, 17, 18, 20, 21, 22, 24, 27, 31, 38, 41, 48, 51, 56, 68, 78, 80, 85, 87, 96, 117, 165, 213

Code: (213, 165) (48, 117) (80, 38, 56, 87) (20, 18) (2, 41, 31) (22) (21, 96) (85, 17) (10, 78, 27, 3) (24) (68) (51)
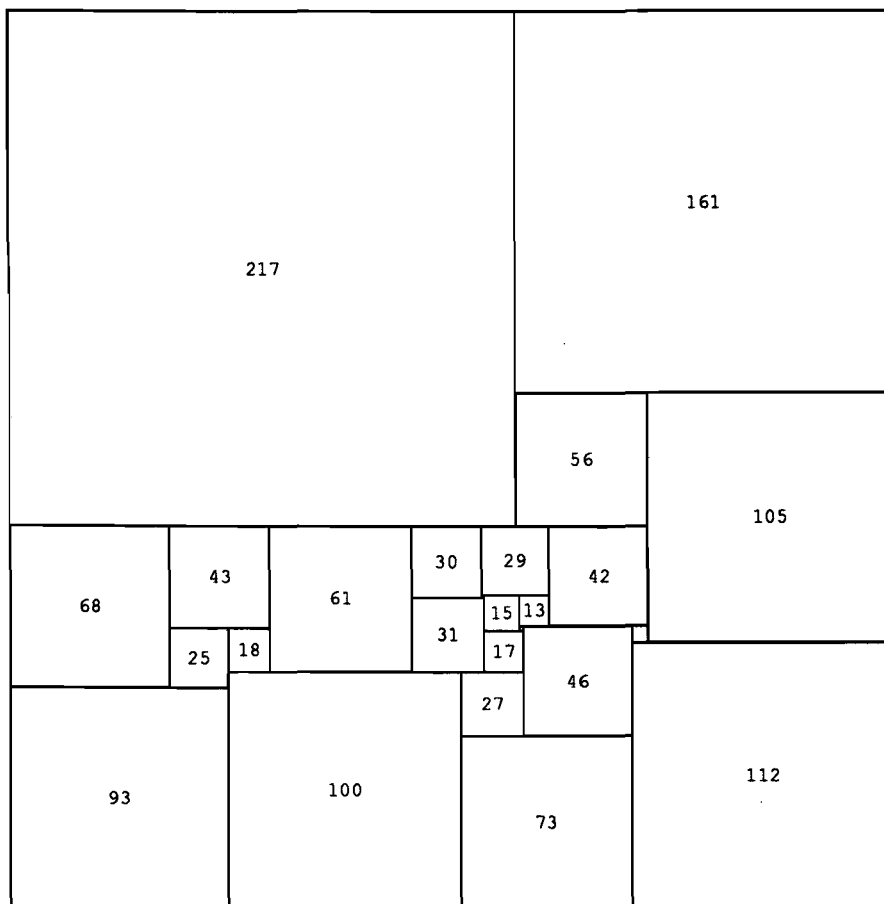
Order: 25

Reduced side: 378

Elements: 1, 2, 7, 13, 15, 17, 18, 25, 27, 29, 30, 31, 42, 43, 46, 56, 61, 68, 73, 93, 100, 105, 112, 161, 217

Code: (217, 161) (56, 105) (68, 43, 61, 30, 29, 42) (1, 15, 13) (31) (2, 46, 7) (25, 18) (17) (112) (100, 27) (93) (73)

Order: 25

Reduced side: 380

Elements: 4, 7, 17, 18, 19, 20, 21, 26, 31, 33, 35, 40, 45, 48, 49, 60, 67, 73, 79, 81, 87, 107, 113, 186, 194

Code: (194, 186) (79, 107) (113, 81) (31, 48) (60, 21) (20, 87) (35, 17) (73, 40) (18, 67) (4, 49) (19, 45) (33, 7) (26)
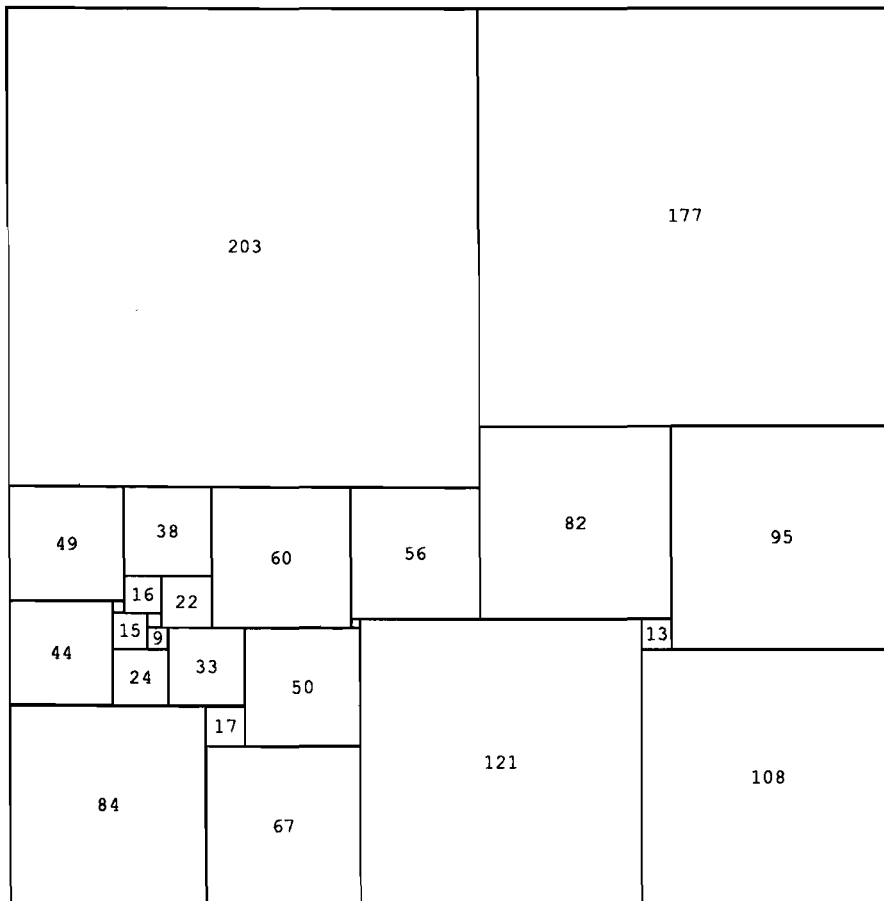
Order: 25

Reduced side: 380

Elements: 4, 5, 6, 9, 13, 15, 16, 17, 22, 24, 33, 38, 44, 49, 50, 56, 60, 67, 82, 84, 95, 108, 121, 177, 203

Code: (203, 177) (82, 95) (49, 38, 60, 56) (16, 22) (44, 5) (15, 6) (4, 121, 13) (9, 33, 50) (24) (108) (84, 17) (67)

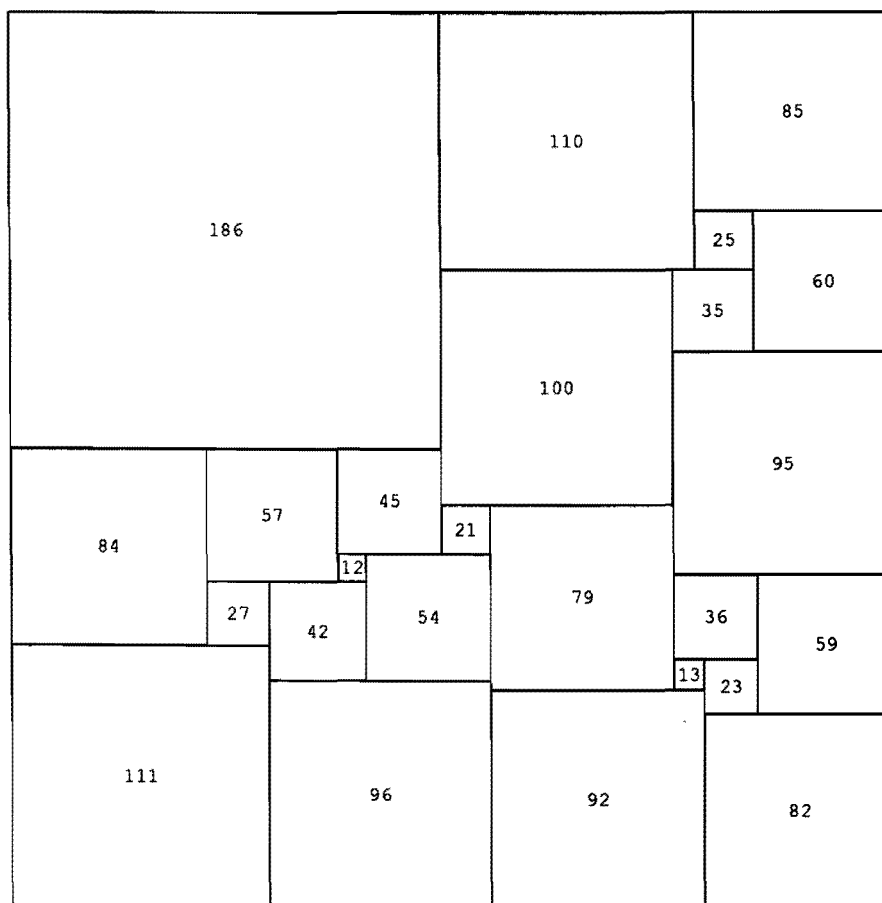Order: 25

Reduced side: 381

Elements: 12, 13, 21, 23, 25, 27, 35, 36, 42, 45, 54, 57, 59, 60, 79, 82, 84, 85, 92, 95, 96, 100, 110, 111, 186

Code: (186, 110, 85) (25, 60) (100, 35) (95) (84, 57, 45) (21, 79) (12, 54) (36, 59) (27, 42) (111) (13, 23) (96) (92) (82)
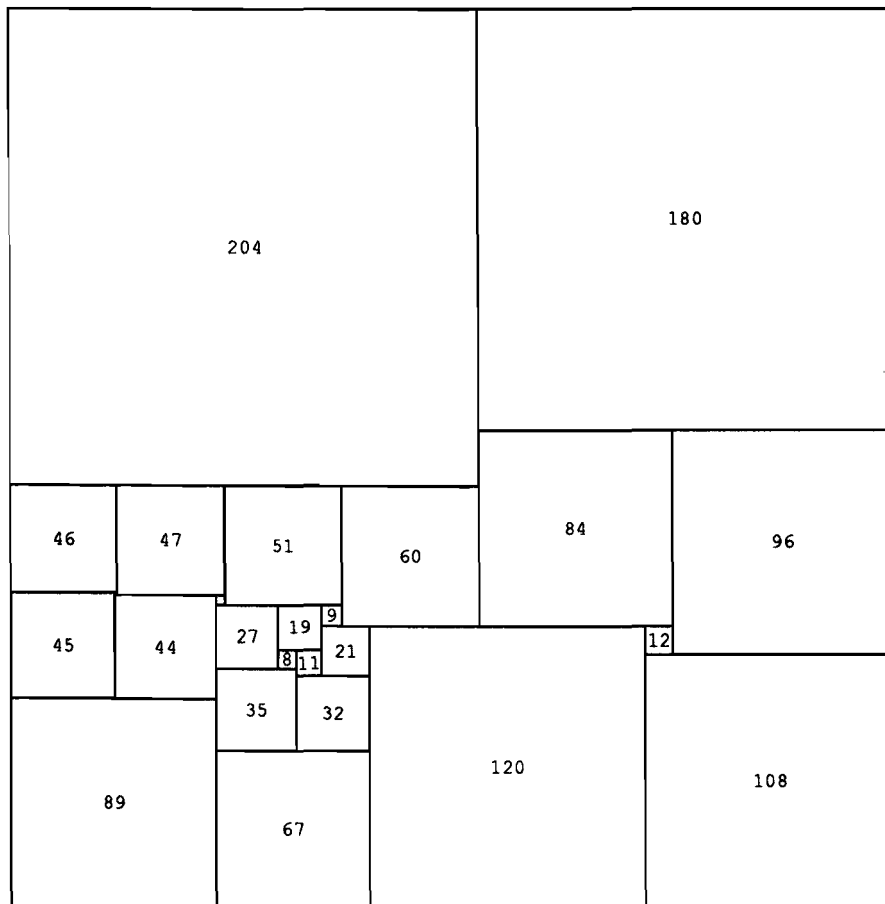
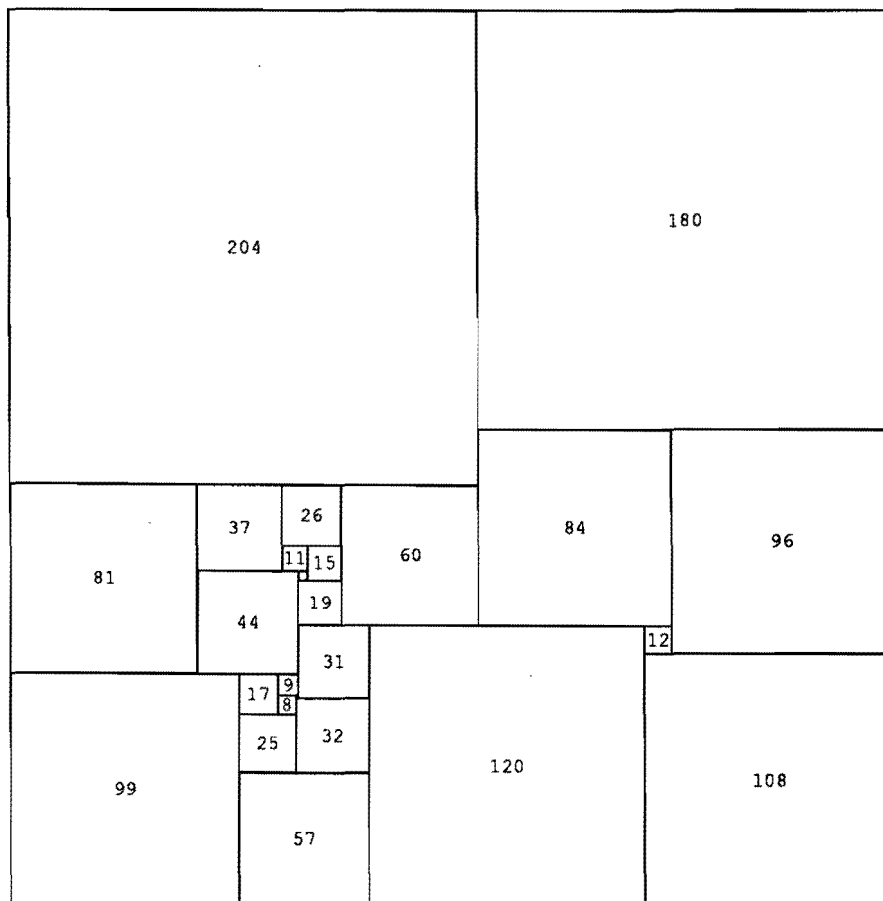| Order:	25
Reduced side:	384
Elements:	1, 4, 8, 9, 11, 12, 19, 21, 27, 32, 35, 44, 45, 46, 47, 51, 60, 67, 84, 89, 96, 108, 120, 180, 204
Code:	(204, 180) (84, 96) (46, 47, 51, 60) (45, 1) (44, 4) (27, 19, 9) (21, 120, 12) (8, 11) (108) (35) (32) (89) (67)

Order: 25

Reduced side: 384

Elements: 1, 4, 8, 9, 11, 12, 15, 17, 19, 25, 26, 31, 32, 37, 44, 57, 60, 81, 84, 96, 99, 108, 120, 180, 204

Code: (204, 180) (84, 96) (81, 37, 26, 60) (11, 15) (44, 4) (19) (31, 120, 12) (108) (99, 17, 9) (8, 1) (32) (25) (57)
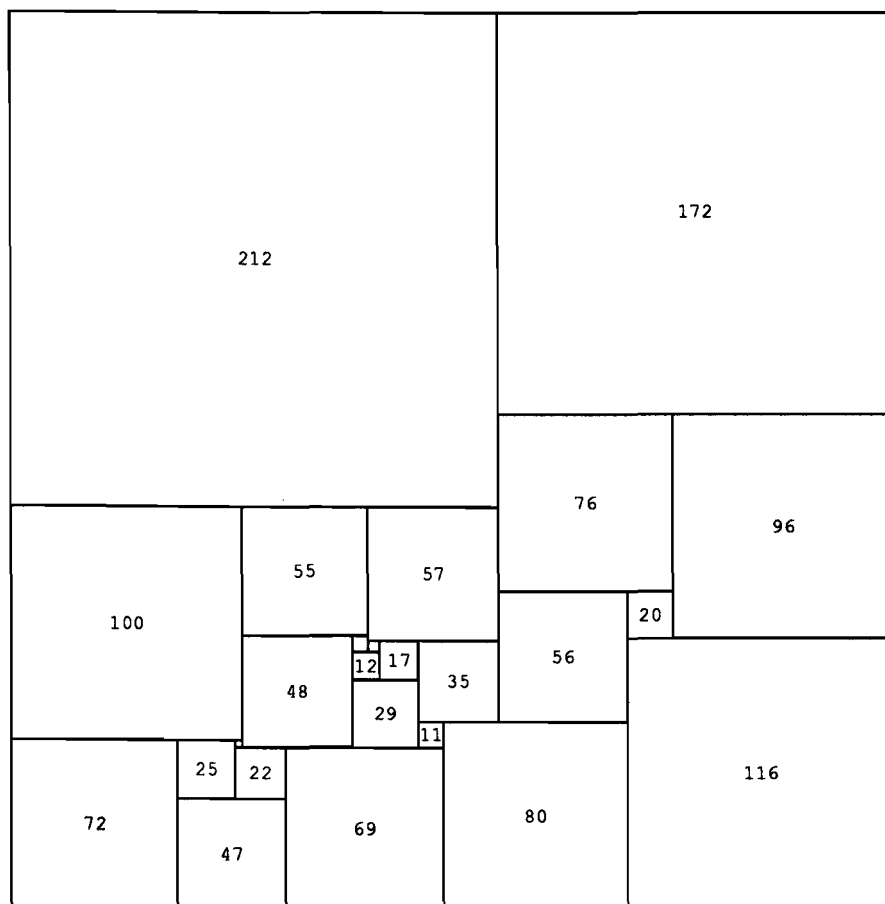
Order: 25

Reduced side: 384

Elements: 3, 5, 7, 11, 12, 17, 20, 22, 25, 29, 35, 47, 48, 55, 56, 57, 69, 72, 76, 80, 96, 100, 116, 172, 212

Code: (212, 172) (76, 96) (100, 55, 57) (56, 20) (48, 7) (116) (5, 17, 35) (12) (29) (11, 80) (72, 25, 3) (22, 69) (47)
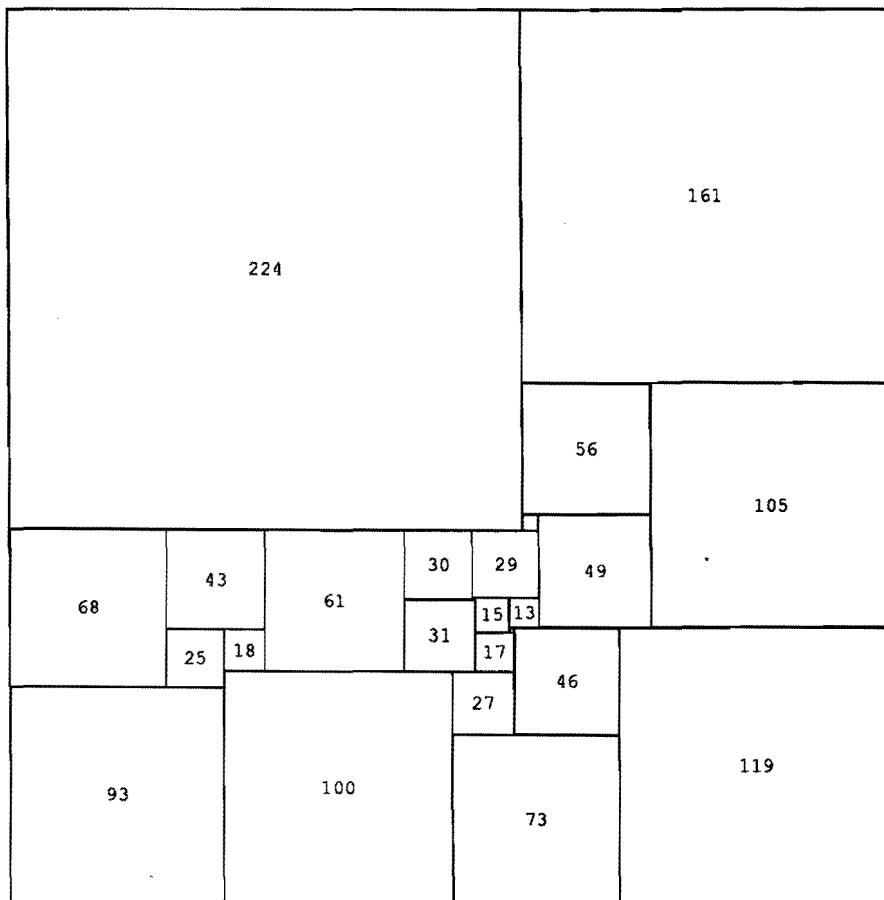
Order: 25

Reduced side: 385

Elements: 1, 2, 7, 13, 15, 17, 18, 25, 27, 29, 30, 31, 43, 46, 49, 56, 61, 68, 73, 93, 100, 105, 119, 161, 224

Code: (224, 161) (56, 105) (7, 49) (68, 43, 61, 30, 29) (1, 15, 13) (31) (2, 46, 119) (25, 18) (17) (100, 27) (93) (73)

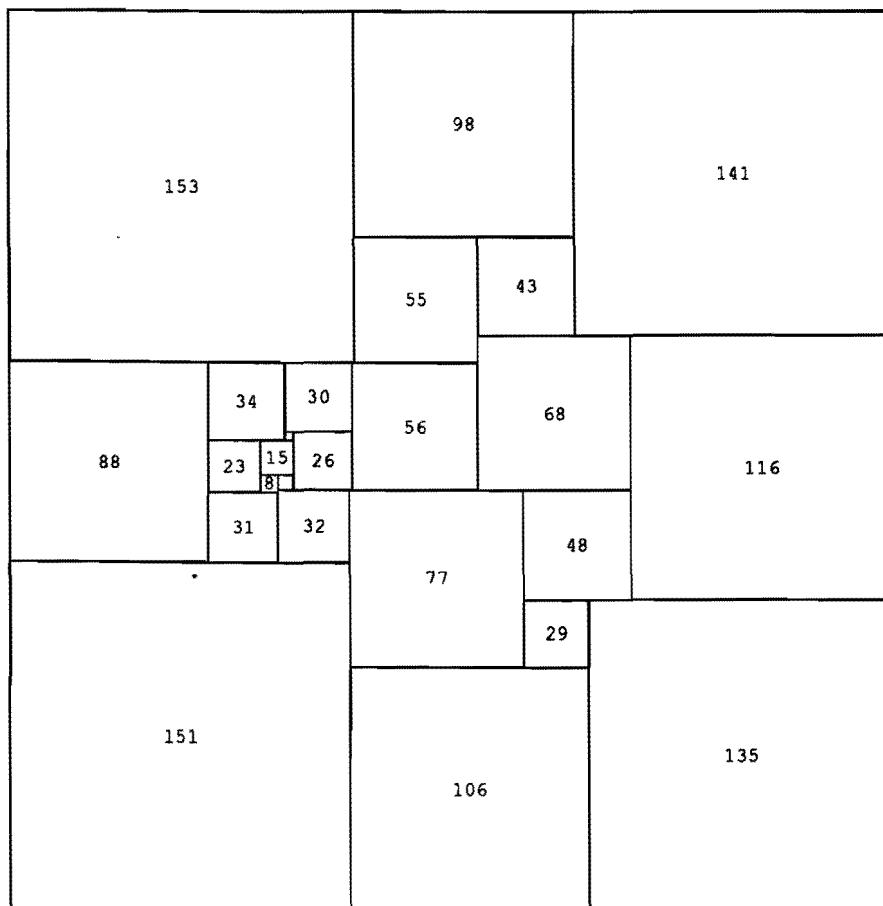Order: 25

Reduced side: 392

Elements: 4, 7, 8, 15, 23, 26, 29, 30, 31, 32, 34, 43, 48, 55, 56, 68, 77, 88, 98, 106, 116, 135, 141, 151, 153

Code: (153, 98, 141) (55, 43) (68, 116) (88, 34, 30, 56) (4, 26) (23, 15) (8, 7) (32, 77, 48) (31) (151) (29, 135) (106)
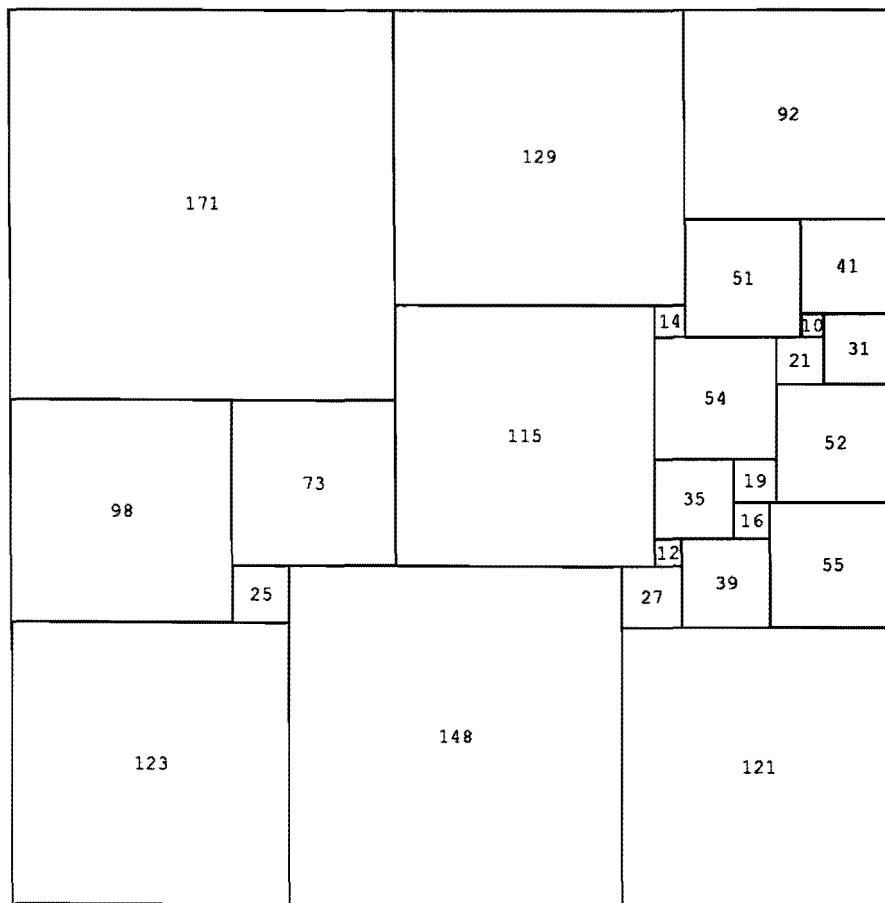
Order: 25

Reduced side: 392

Elements: 10, 12, 14, 16, 19, 21, 25, 27, 31, 35, 39, 41, 51, 52, 54, 55, 73, 92, 98, 115, 121, 123, 129, 148, 171

Code: (171, 129, 92) (51, 41) (115, 14) (10, 31) (54, 21) (52) (98, 73) (35, 19) (16, 55) (12, 39) (25, 148, 27) (123) (121)
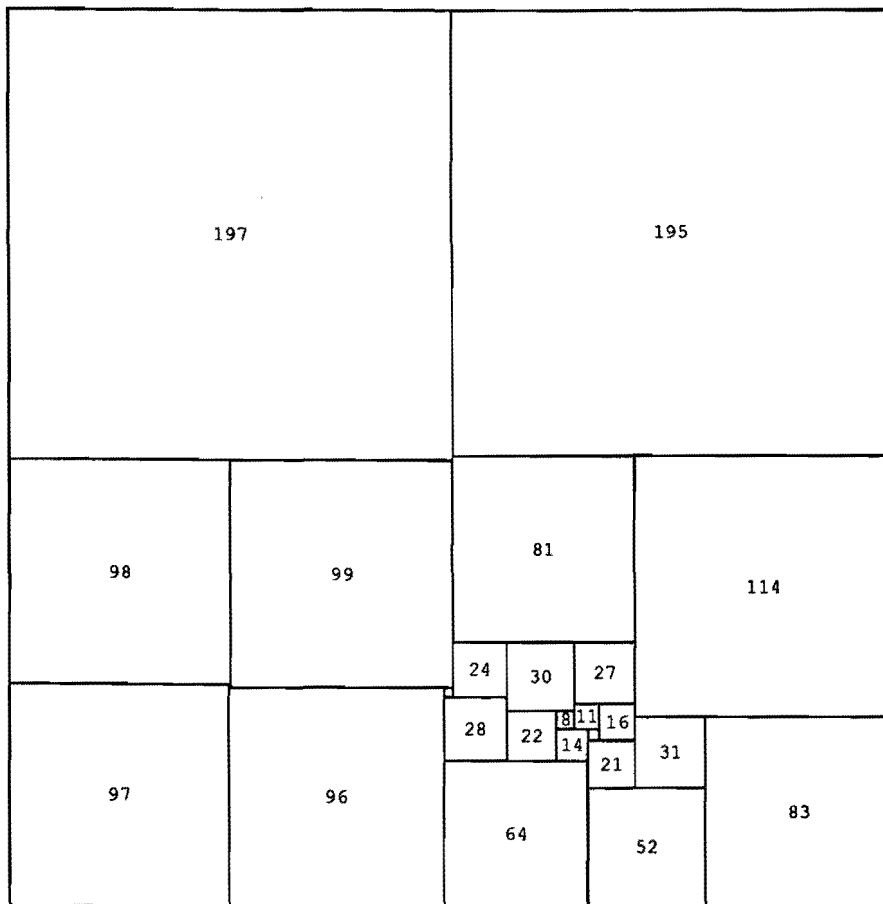
Order: 25

Reduced side: 392

Elements: 1, 4, 5, 8, 11, 14, 16, 21, 22, 24, 27, 28, 30, 31, 52, 64, 81, 83, 96, 97, 98, 99, 114, 195, 197

Code: (197, 195) (81, 114) (98, 99) (24, 30, 27) (97, 1) (96, 4) (28) (11, 16) (22, 8) (31, 83) (14, 5) (21) (64) (52)
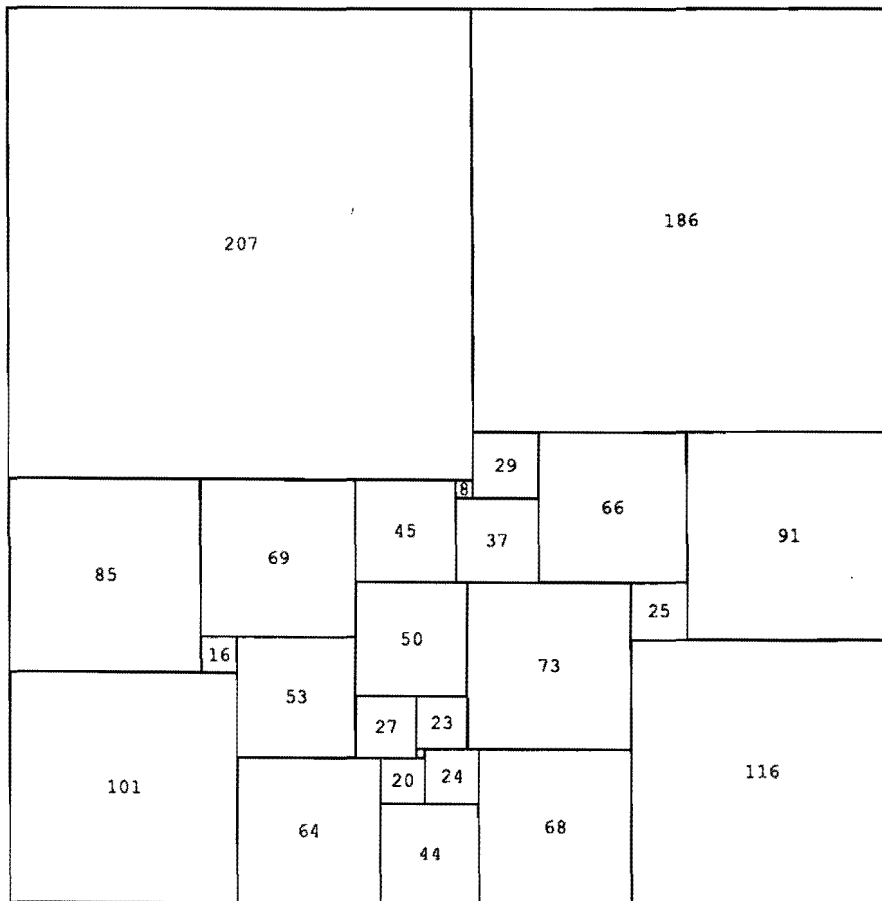
Order: 25

Reduced side: 393

Elements: 4, 8, 16, 20, 23, 24, 25, 27, 29, 37, 44, 45, 50, 53, 64, 66, 68, 69, 73, 85, 91,
                101, 116, 186, 207

Code: (207, 186) (29, 66, 91) (85, 69, 45, 8) (37) (50, 73, 25) (16, 53) (116) (101)
                (27, 23) (4, 24, 68) (64, 20) (44)
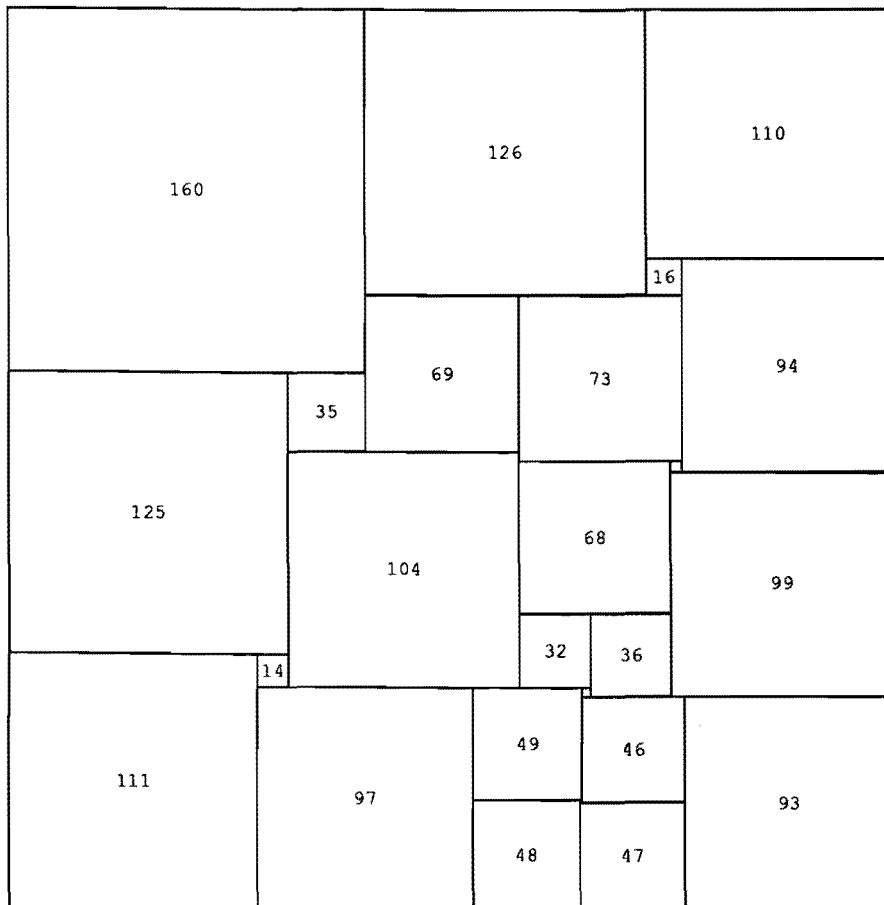
Order: 25

Reduced side: 396

Elements: 1, 4, 5, 14, 16, 32, 35, 36, 46, 47, 48, 49, 68, 69, 73, 93, 94, 97, 99, 104, 110, 111, 125, 126, 160

Code: (160, 126, 110) (16, 94) (69, 73) (125, 35) (104) (68, 5) (99) (32, 36) (111, 14) (97, 49, 4) (46, 93) (48, 1) (47)
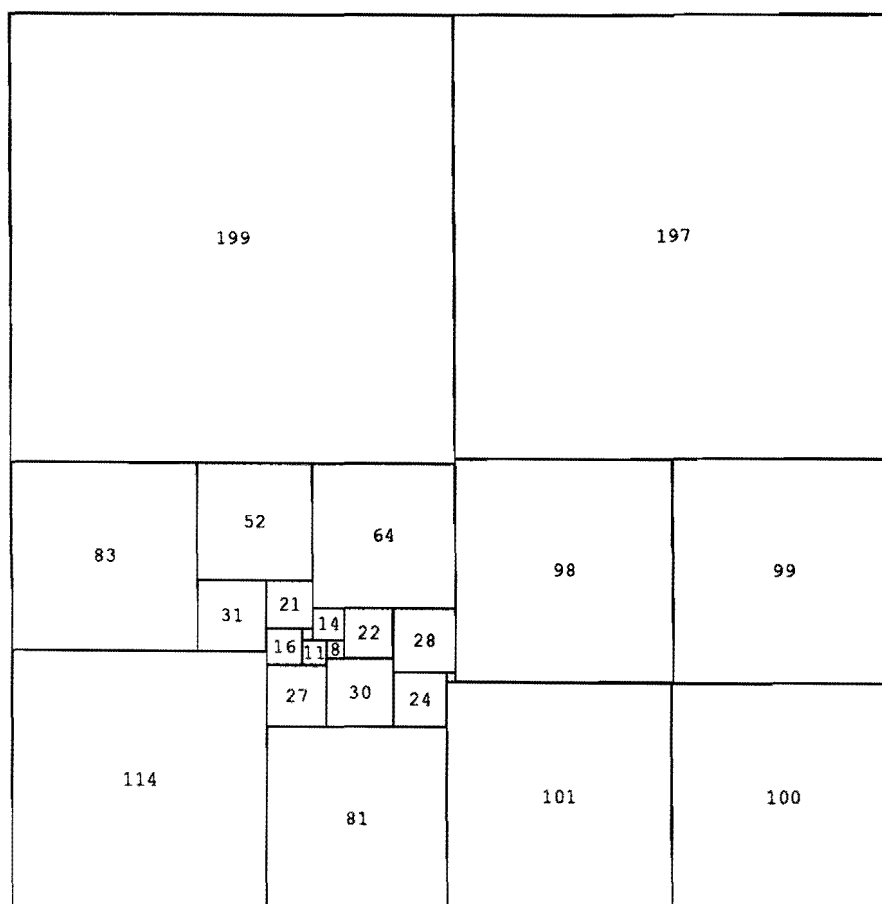
Order: 25

Reduced side: 396

Elements: 1, 4, 5, 8, 11, 14, 16, 21, 22, 24, 27, 28, 30, 31, 52, 64, 81, 83, 98, 99, 100, 101, 114, 197, 199

Code: (199, 197) (98, 99) (83, 52, 64) (31, 21) (14, 22, 28) (16, 5) (11, 8) (114) (30) (27) (24, 4) (101, 1) (100) (81)
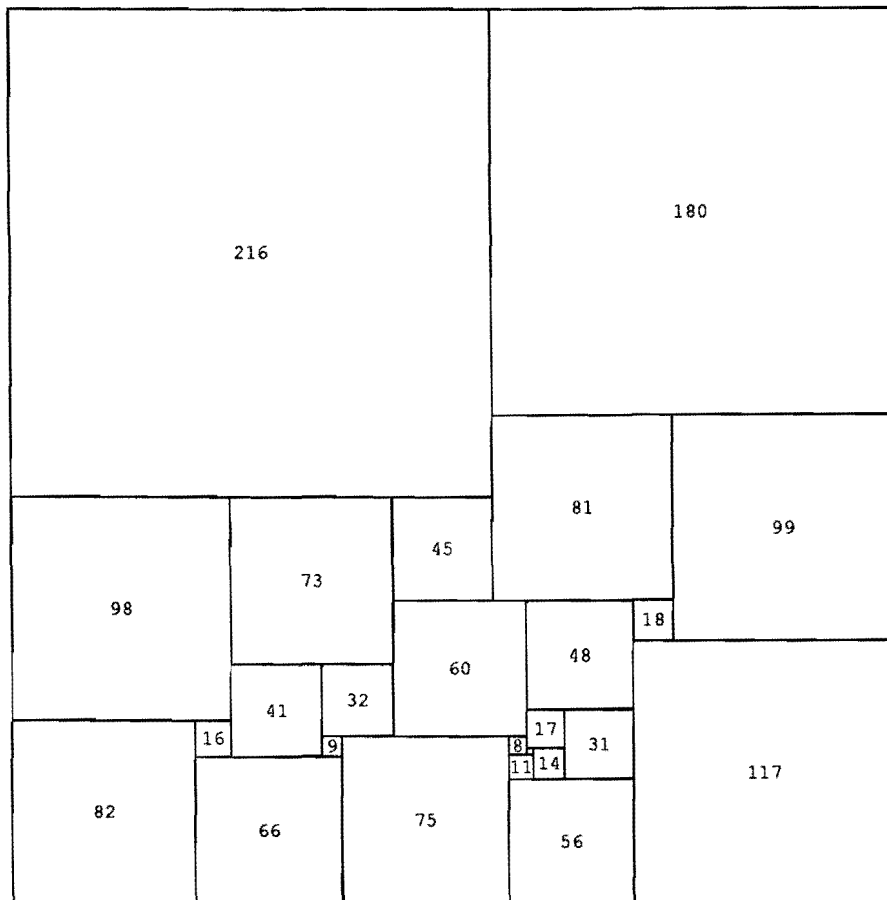
Order: 25

Reduced side: 396

Elements: 3, 8, 9, 11, 14, 16, 17, 18, 31, 32, 41, 45, 48, 56, 60, 66, 73, 75, 81, 82, 98, 99, 117, 180, 216

Code: (216, 180) (81, 99) (98, 73, 45) (60, 48, 18) (117) (41, 32) (17, 31) (82, 16) (9, 75, 8) (3, 14) (11) (66) (56)
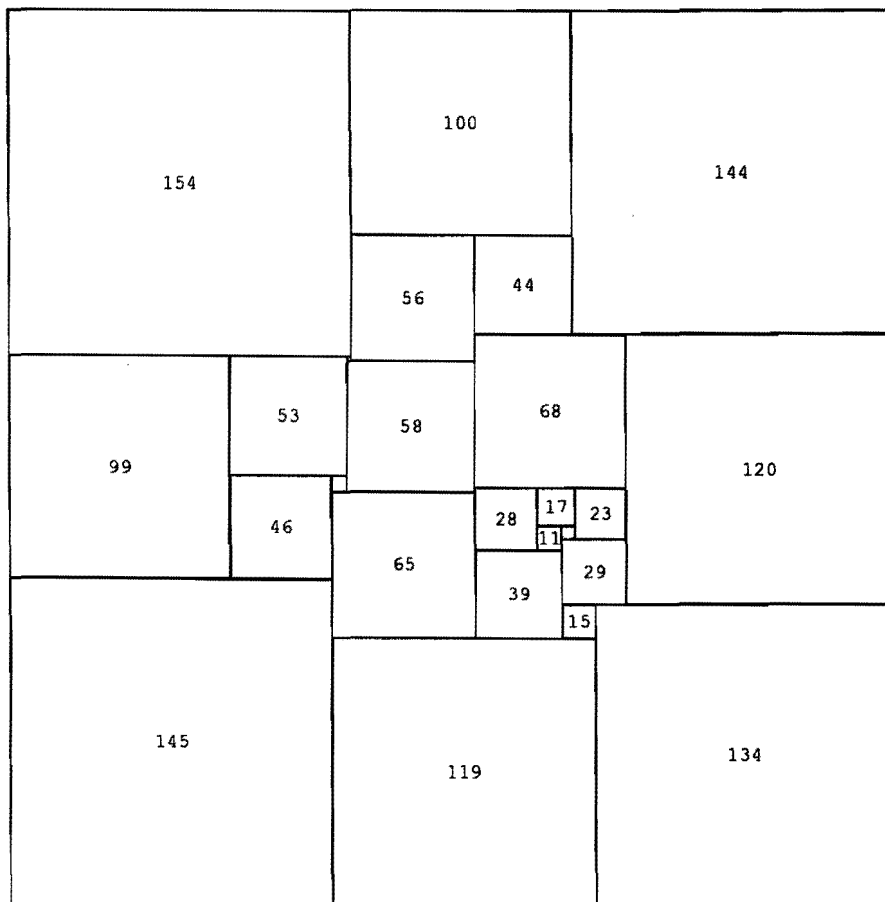
Order: 25

Reduced side: 398

Elements: 2, 6, 7, 11, 15, 17, 23, 28, 29, 39, 44, 46, 53, 56, 58, 65, 68, 99, 100, 119, 120, 134, 144, 145, 154

Code: (154, 100, 144) (56, 44) (68, 120) (99, 53, 2) (58) (46, 7) (28, 17, 23) (65) (11, 6) (29) (39) (145) (15, 134) (119)
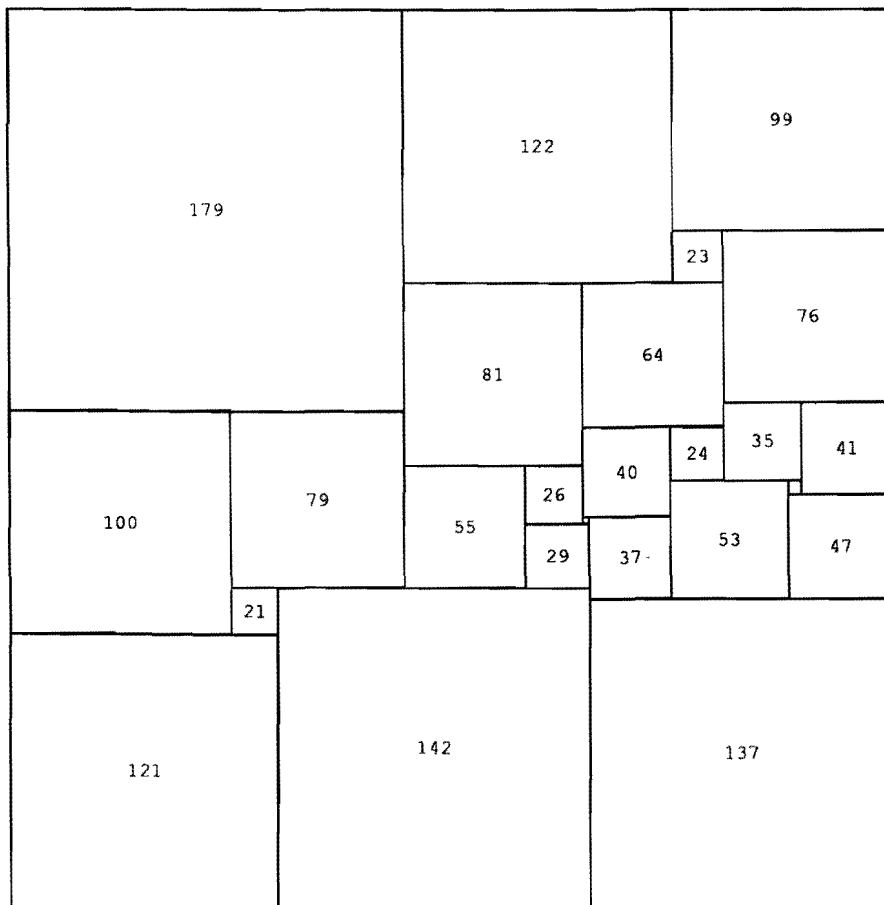
Order: 25

Reduced side: 400

Elements: 3, 6, 21, 23, 24, 26, 29, 35, 37, 40, 41, 47, 53, 55, 64, 76, 79, 81, 99, 100, 121, 122, 137, 142, 179

Code: (179, 122, 99) (23, 76) (81, 64) (35, 41) (100, 79) (40, 24) (55, 26) (53, 6) (47) (3, 37) (29) (21, 142) (137) (121)
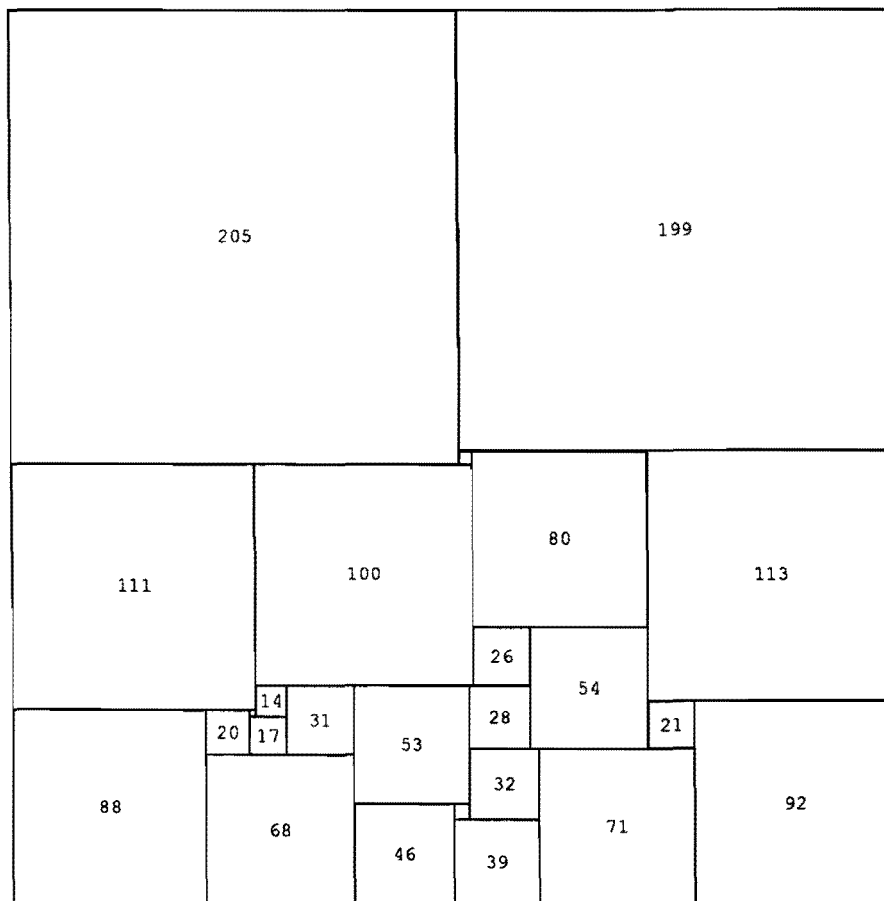
Order: 25

Reduced side: 404

Elements: 3, 6, 7, 14, 17, 20, 21, 26, 28, 31, 32, 39, 46, 53, 54, 68, 71, 80, 88, 92, 100, 111, 113, 199, 205

Code: (205, 199) (6, 80, 113) (111, 100) (26, 54) (14, 31, 53, 28) (21, 92) (88, 20, 3) (17) (32, 71) (68) (46, 7) (39)
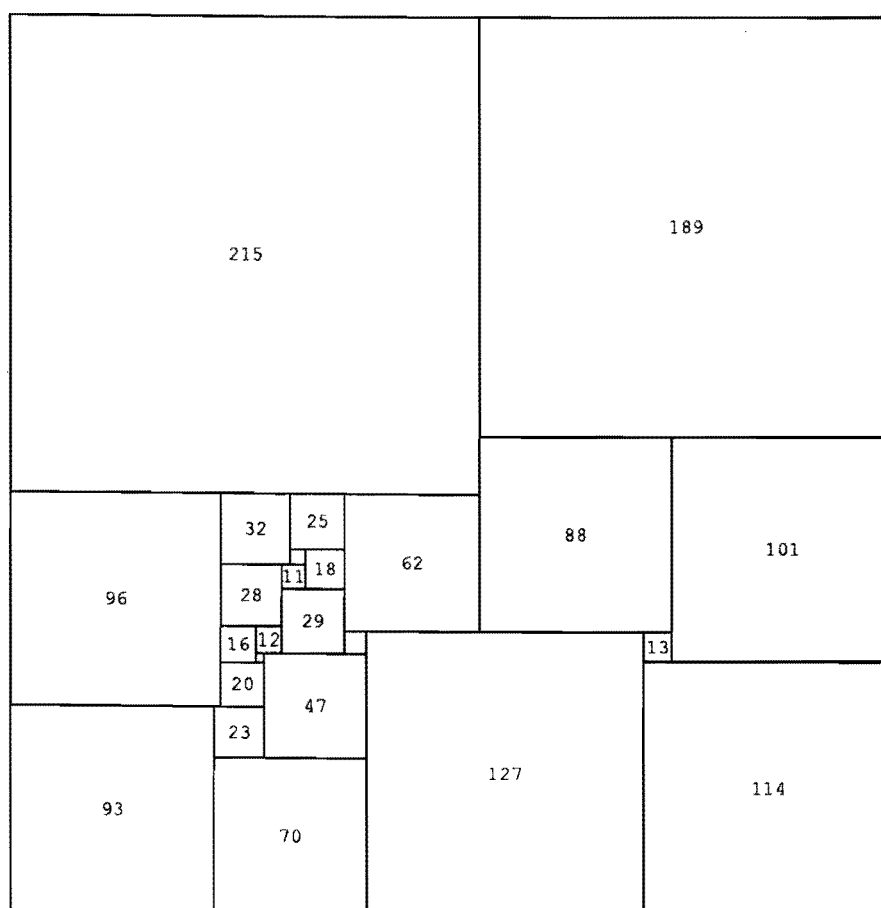
Order: 25

Reduced side: 404

Elements: 4, 7, 10, 11, 12, 13, 16, 18, 20, 23, 25, 28, 29, 32, 47, 62, 70, 88, 93, 96, 101, 114, 127, 189, 215

Code: (215, 189) (88, 101) (96, 32, 25, 62) (7, 18) (28, 11) (29) (16, 12) (10, 127, 13) (4, 47) (114) (20) (93, 23) (70)
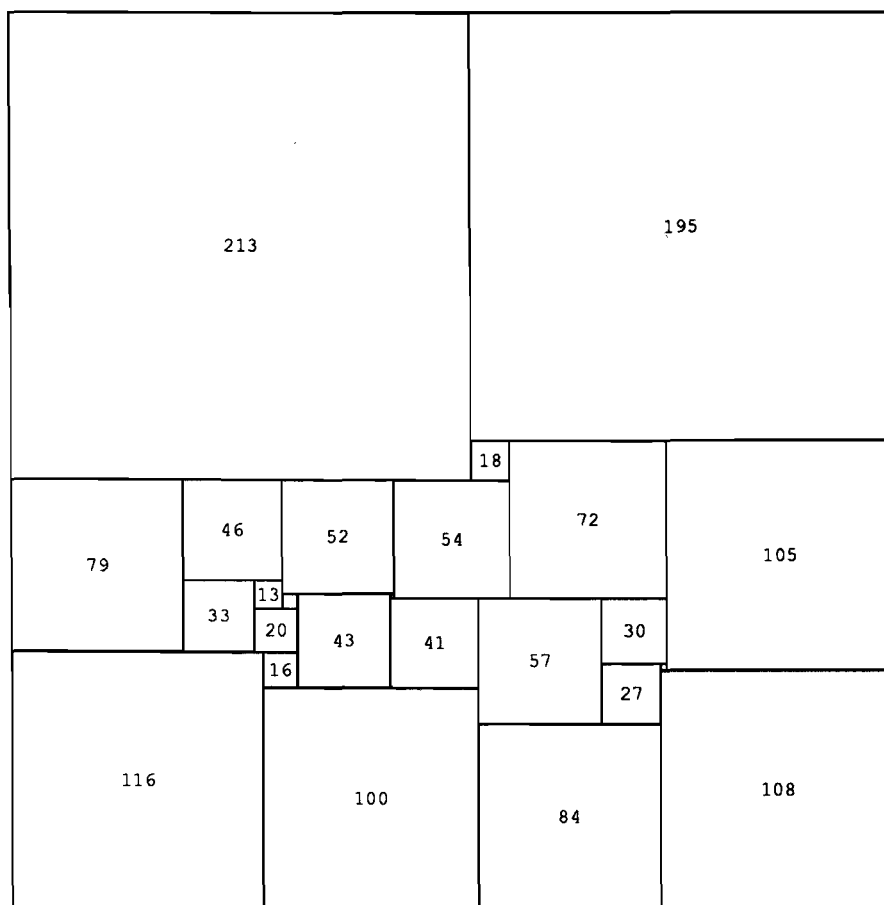
Order: 25

Reduced side: 408

Elements: 2, 3, 7, 13, 16, 18, 20, 27, 30, 33, 41, 43, 46, 52, 54, 57, 72, 79, 84, 100, 105, 108, 116, 195, 213

Code: (213, 195) (18, 72, 105) (79, 46, 52, 54) (33, 13) (7, 43, 2) (41, 57, 30) (20) (116, 16) (27, 3) (108) (100) (84)
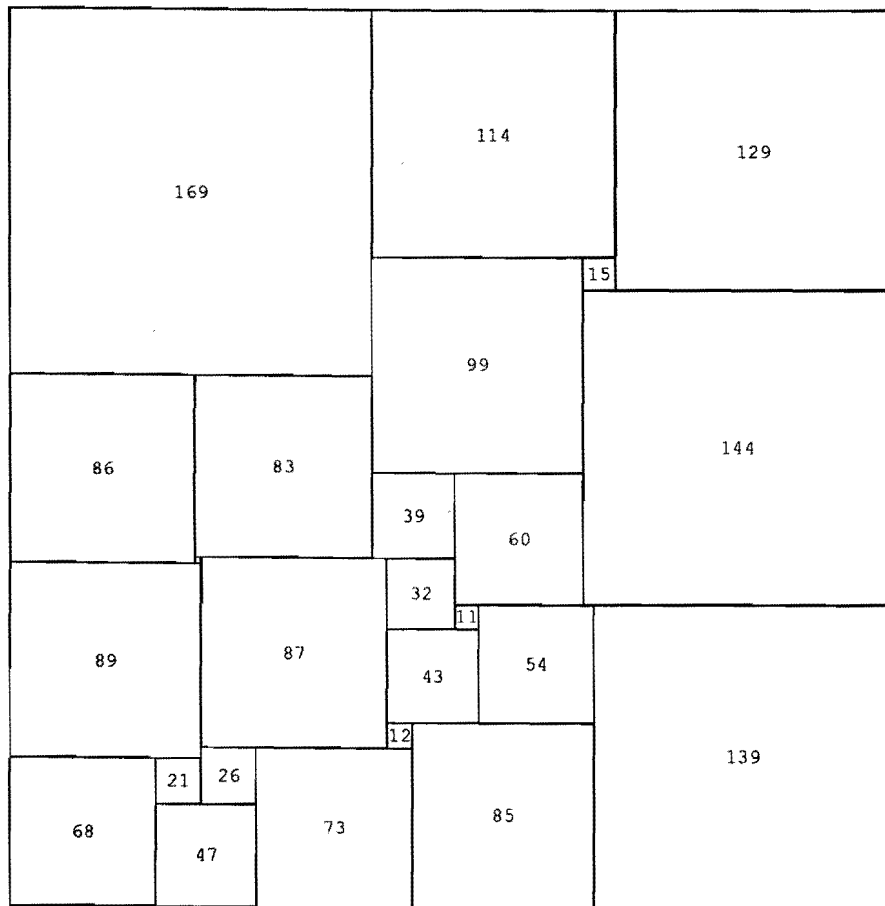
Order: 25

Reduced side: 412

Elements: 3, 11, 12, 15, 21, 26, 32, 39, 43, 47, 54, 60, 68, 73, 83, 85, 86, 87, 89, 99, 114, 129, 139, 144, 169

Code: (169, 114, 129) (99, 15) (144) (86, 83) (39, 60) (3, 87, 32) (89) (11, 54, 139) (43) (12, 85) (26, 73) (68, 21) (47)
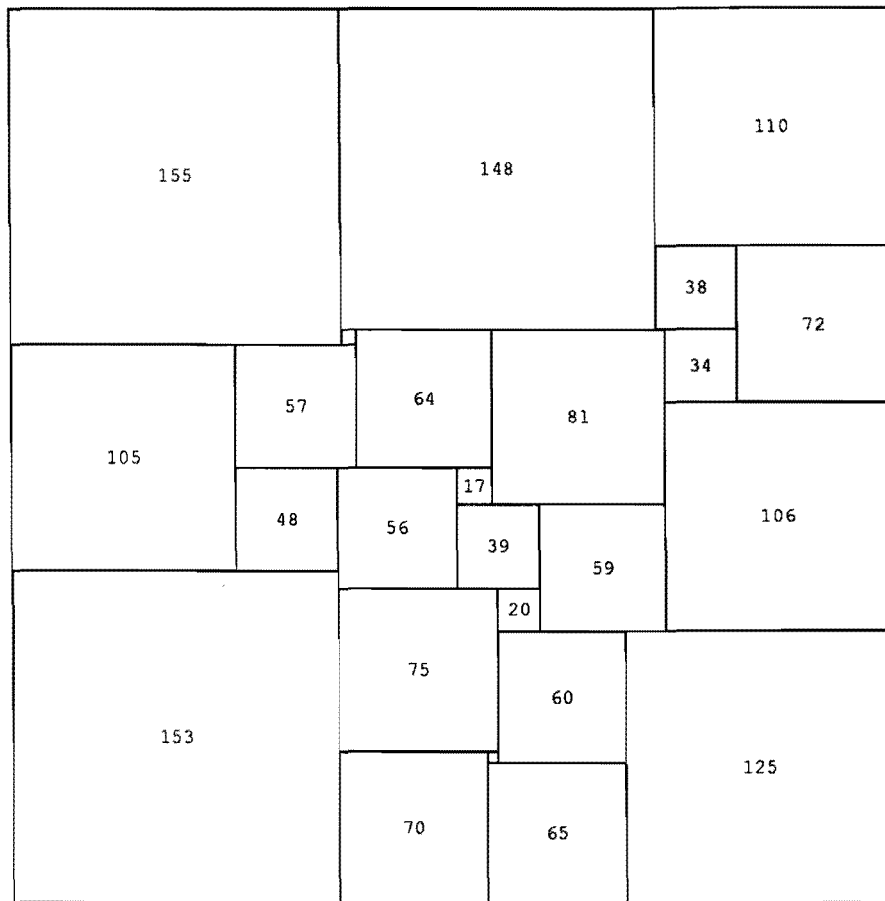
Order: 25

Reduced side: 413

Elements: 5, 7, 17, 20, 34, 38, 39, 48, 56, 57, 59, 60, 64, 65, 70, 72, 75, 81, 105, 106, 110, 125, 148, 153, 155

Code: (155, 148, 110) (38, 72) (7, 64, 81, 34) (105, 57) (106) (48, 56, 17) (39, 59) (153) (75, 20) (60, 125) (70, 5) (65)
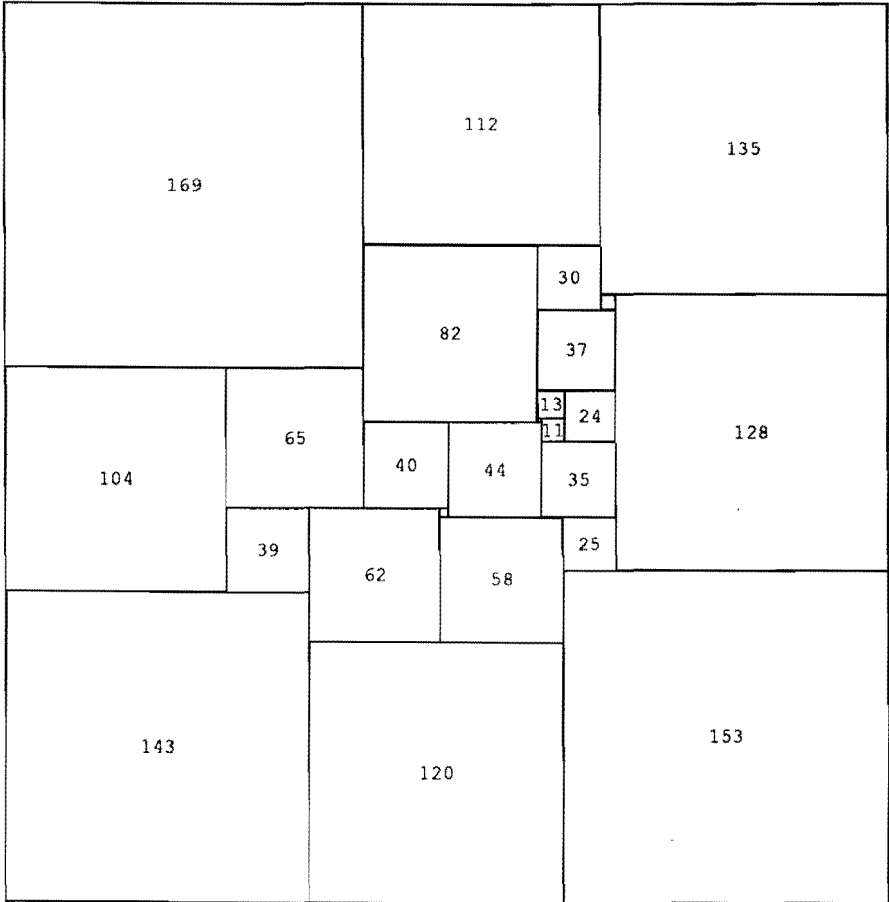
Order: 25

Reduced side: 416

Elements: 2, 4, 7, 11, 13, 24, 25, 30, 35, 37, 39, 40, 44, 58, 62, 65, 82, 104, 112, 120, 128, 135, 143, 153, 169

Code: (169, 112, 135) (82, 30) (7, 128) (37) (104, 65) (13, 24) (2, 11) (40, 44) (35) (39, 62, 4) (58, 25) (153) (143) (120)
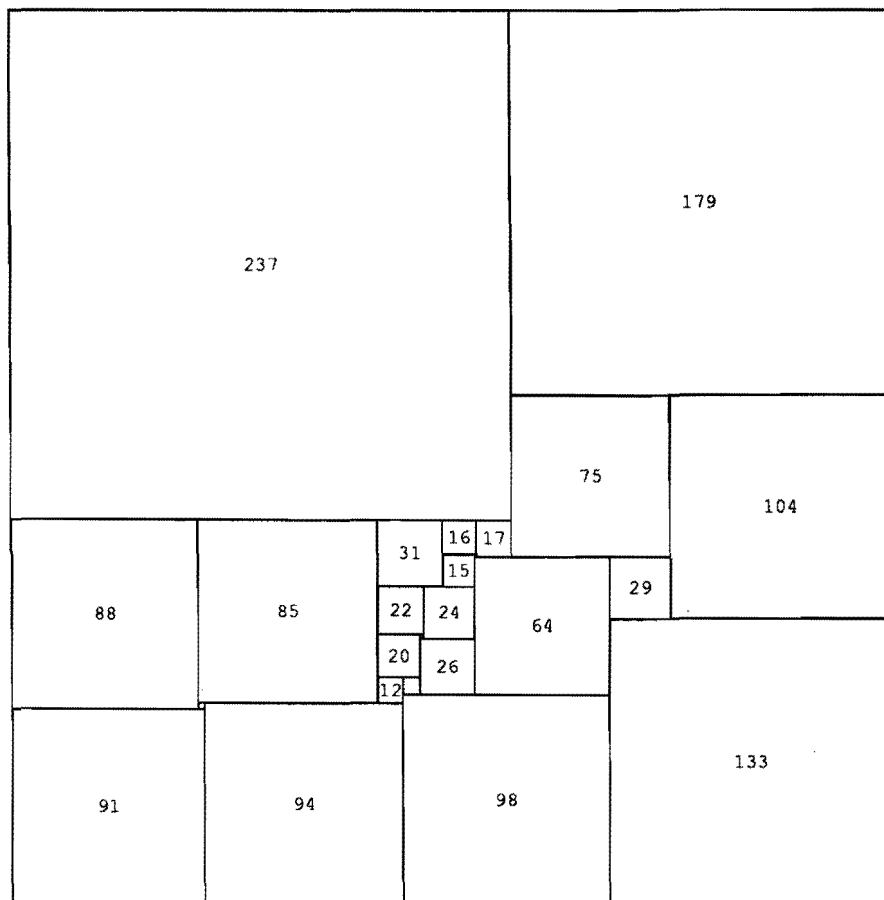
Order: 25

Reduced side: 416

Elements: 1, 2, 3, 8, 12, 15, 16, 17, 20, 22, 24, 26, 29, 31, 64, 75, 85, 88, 91, 94, 98, 104, 133, 179, 237

Code: (237, 179) (75, 104) (88, 85, 31, 16, 17) (15, 1) (64, 29) (22, 24) (133) (20, 2) (26) (12, 8) (98) (3, 94) (91)
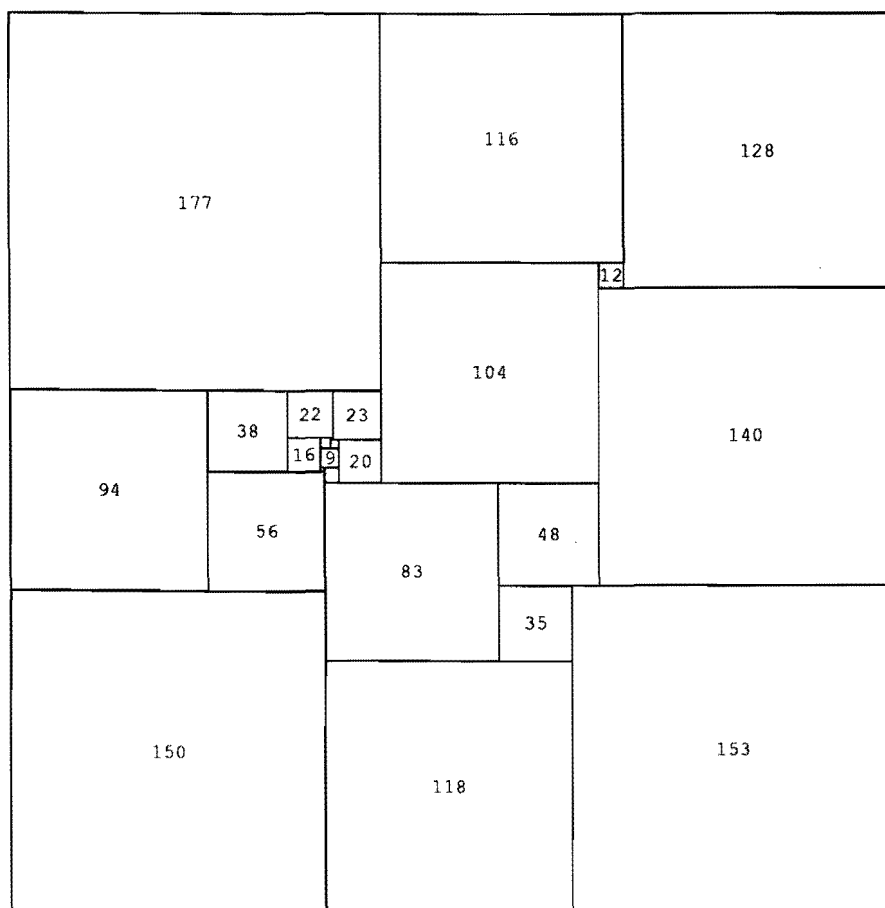
Order: 25

Reduced side: 421

Elements: 1, 2, 4, 5, 7, 9, 12, 16, 20, 22, 23, 35, 38, 48, 56, 83, 94, 104, 116, 118, 128, 140, 150, 153, 177

Code: (177, 116, 128) (104, 12) (140) (94, 38, 22, 23) (16, 5, 1) (4, 20) (9) (2, 7) (56) (83, 48) (35, 153) (150) (118)
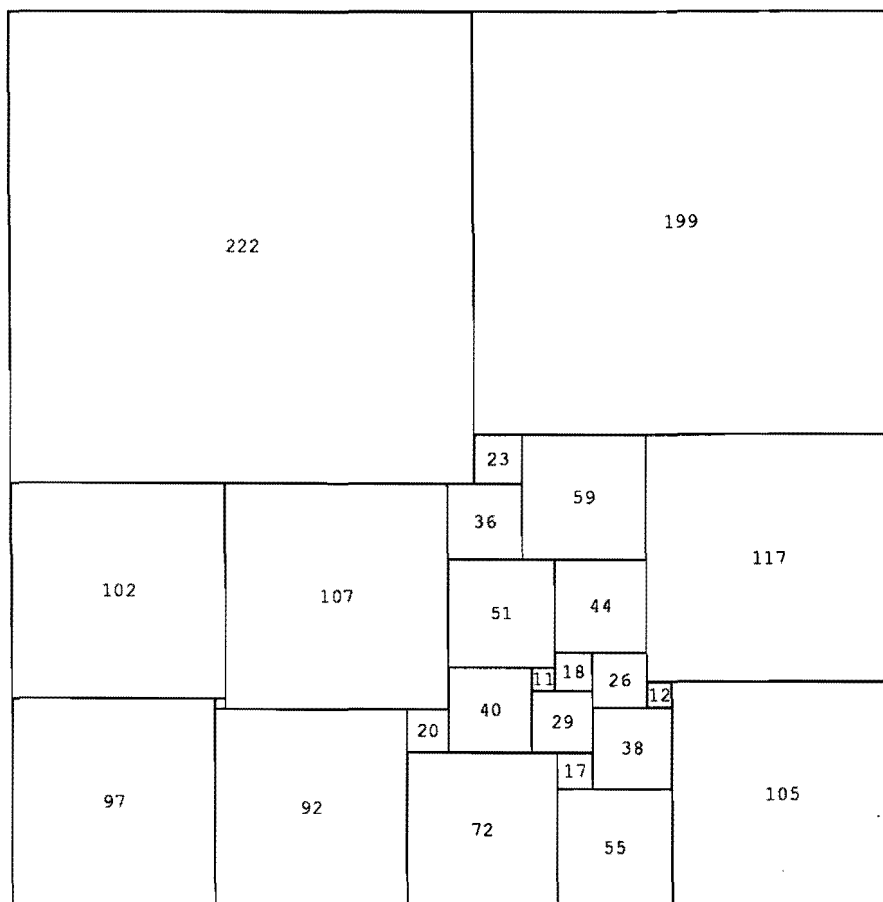
Order: 25

Reduced side: 421

Elements: 5, 11, 12, 17, 18, 20, 23, 26, 29, 36, 38, 40, 44, 51, 55, 59, 72, 92, 97, 102, 105, 107, 117, 199, 222

Code: (222, 199) (23, 59, 117) (102, 107, 36) (51, 44) (18, 26) (40, 11) (12, 105) (29) (97, 5) (38) (92, 20) (72, 17) (55)
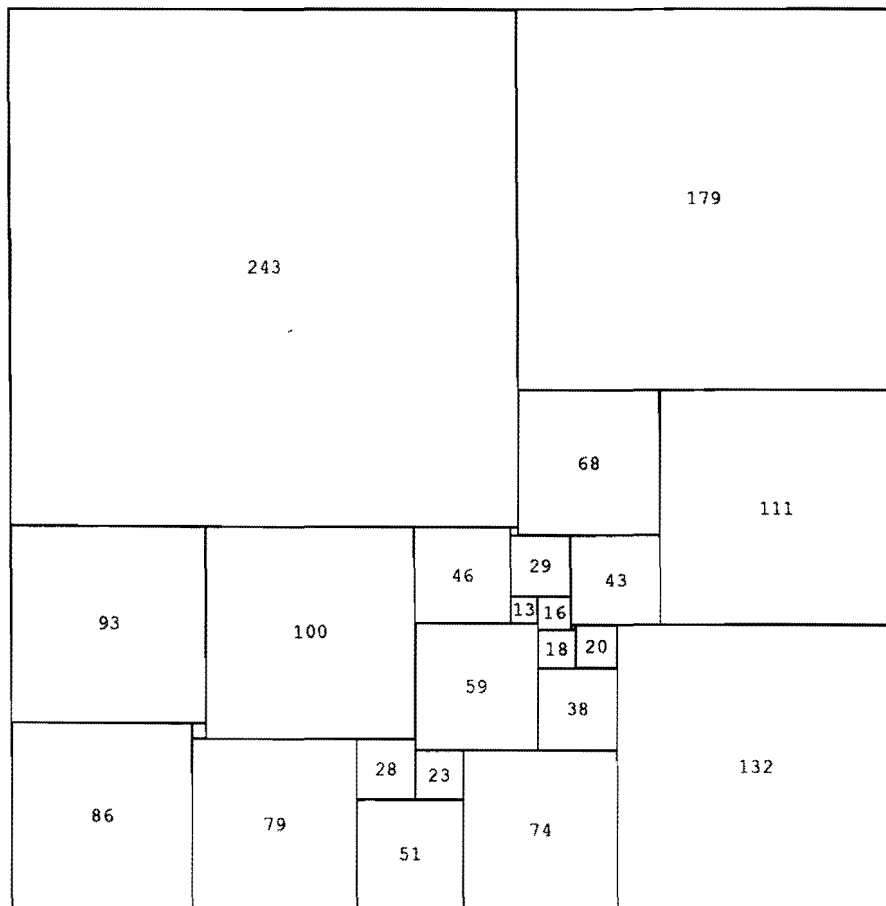
Order: 25

Reduced side: 422

Elements: 2, 4, 7, 13, 16, 18, 20, 23, 28, 29, 38, 43, 46, 51, 59, 68, 74, 79, 86, 93, 100, 111, 132, 179, 243

Code: (243, 179) (68, 111) (93, 100, 46, 4) (29, 43) (13, 16) (59) (2, 20, 132) (18) (38) (86, 7) (79, 28) (23, 74) (51)
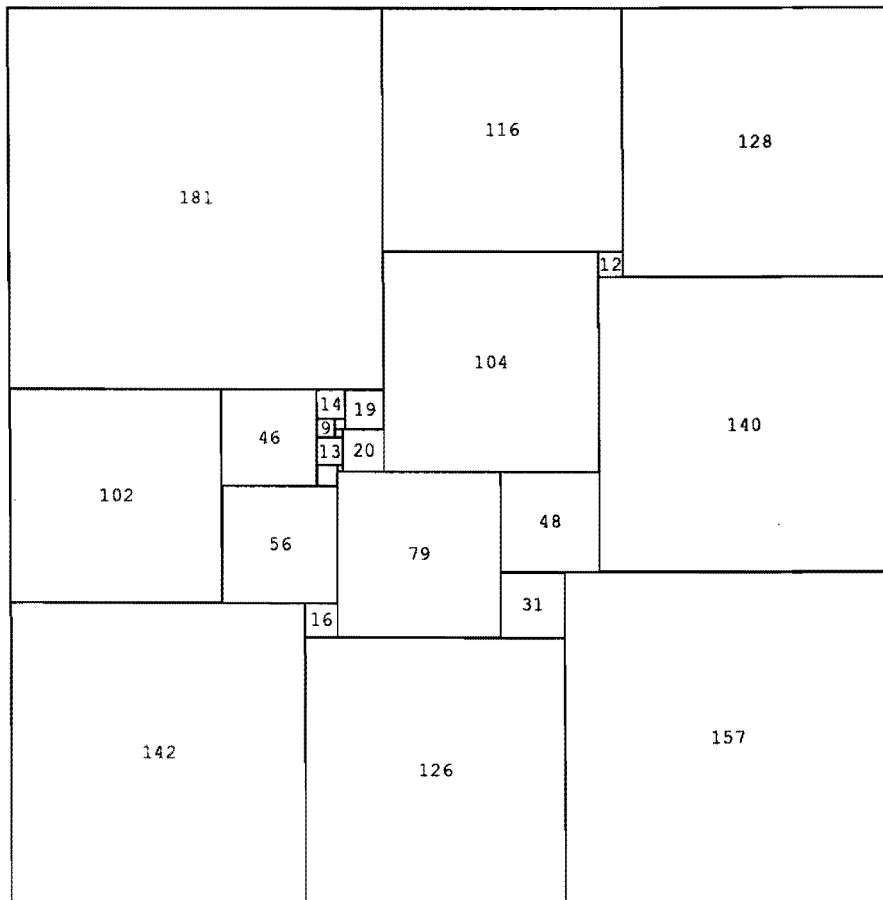
Order: 25

Reduced side: 425

Elements: 3, 4, 5, 9, 10, 12, 13, 14, 16, 19, 20, 31, 46, 48, 56, 79, 102, 104, 116, 126, 128, 140, 142, 157, 181

Code: (181, 116, 128) (104, 12) (140) (102, 46, 14, 19) (9, 5) (4, 20) (13) (10, 3) (79, 48) (56) (31, 157) (142, 16) (126)
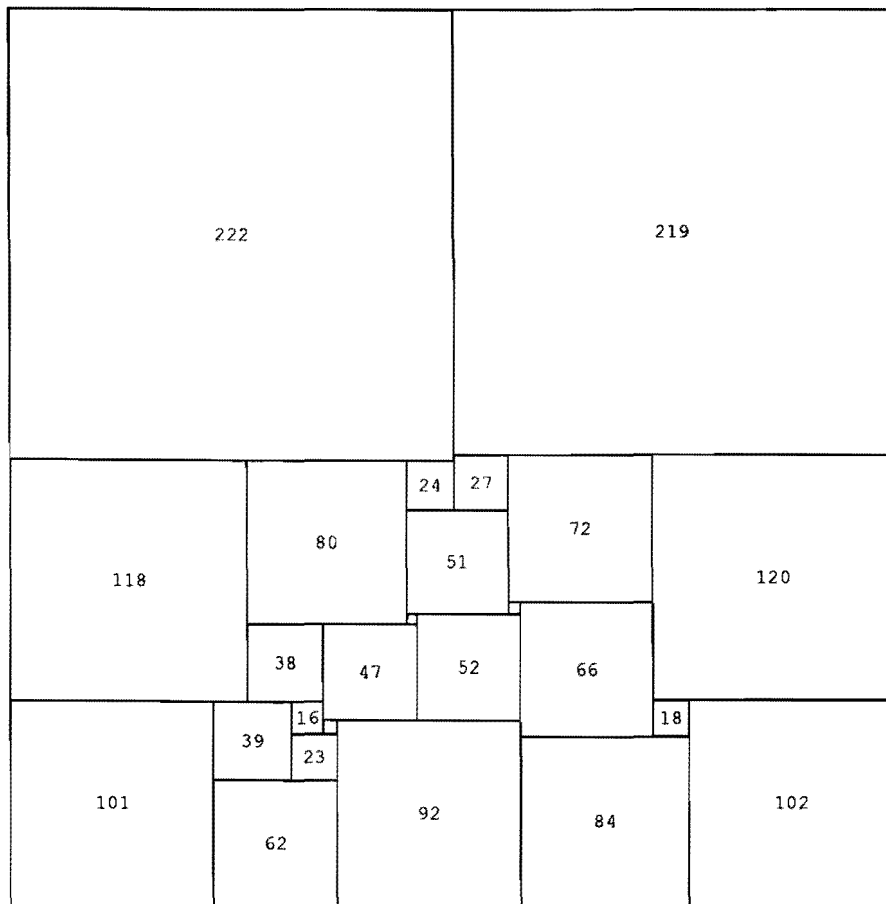
Order: 25

Reduced side: 441

Elements: 5, 6, 7, 16, 18, 23, 24, 27, 38, 39, 47, 51, 52, 62, 66, 72, 80, 84, 92, 101, 102, 118, 120, 219, 222

Code: (222, 219) (27, 72, 120) (118, 80, 24) (51) (6, 66) (5, 52) (38, 47) (18, 102) (101, 39, 16) (7, 92) (23) (84) (62)
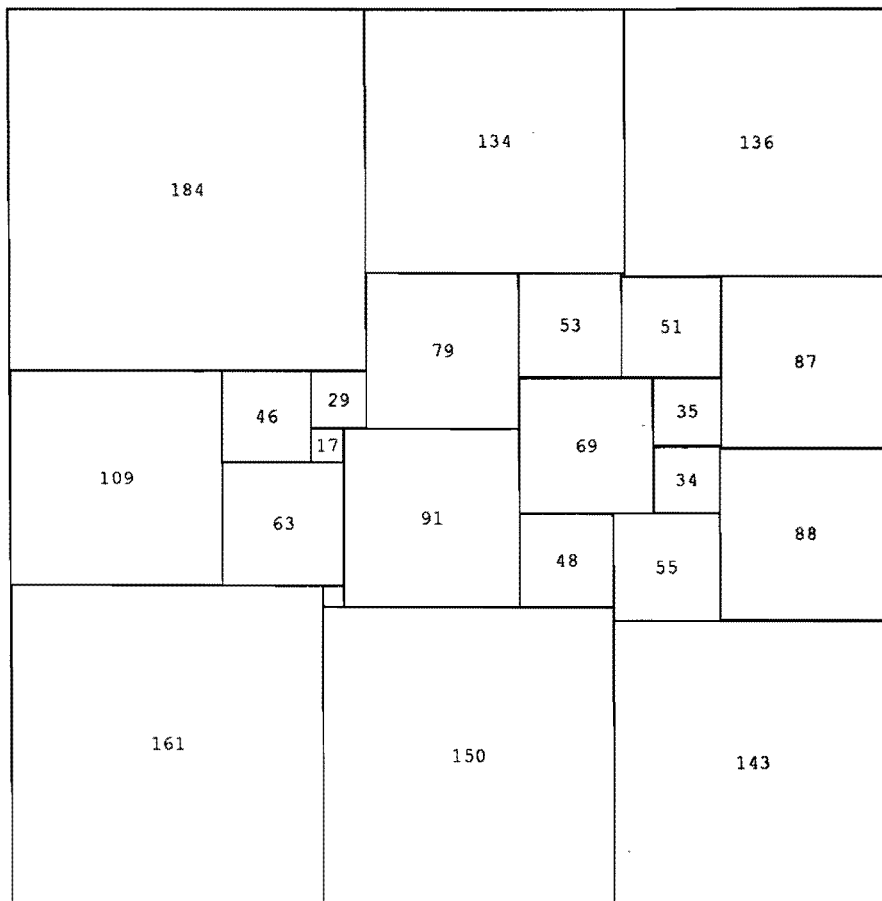
Order: 25

Reduced side: 454

Elements: 1, 2, 11, 17, 29, 34, 35, 46, 48, 51, 53, 55, 63, 69, 79, 87, 88, 91, 109, 134,
                136, 143, 150, 161, 184

Code: (184, 134, 136) (79, 53, 2) (51, 87) (109, 46, 29) (69, 35) (17, 91) (34, 1) (88)
                (63) (48, 55) (161, 11) (150) (143)
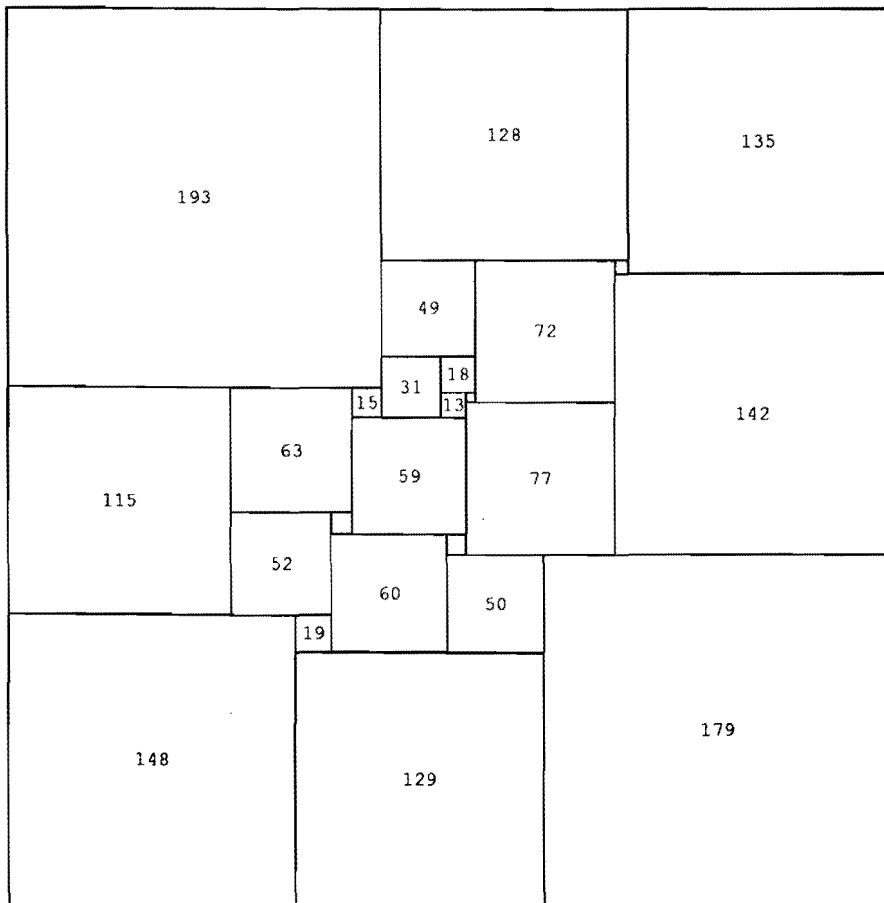
Order: 25

Reduced side: 456

Elements: 5, 7, 10, 11, 13, 15, 18, 19, 31, 49, 50, 52, 59, 60, 63, 72, 77, 115, 128, 129, 135, 142, 148, 179, 193

Code: (193, 128, 135) (49, 72, 7) (142) (31, 18) (115, 63, 15) (13, 5) (77) (59) (52, 11) (60, 10) (50, 179) (148, 19) (129)
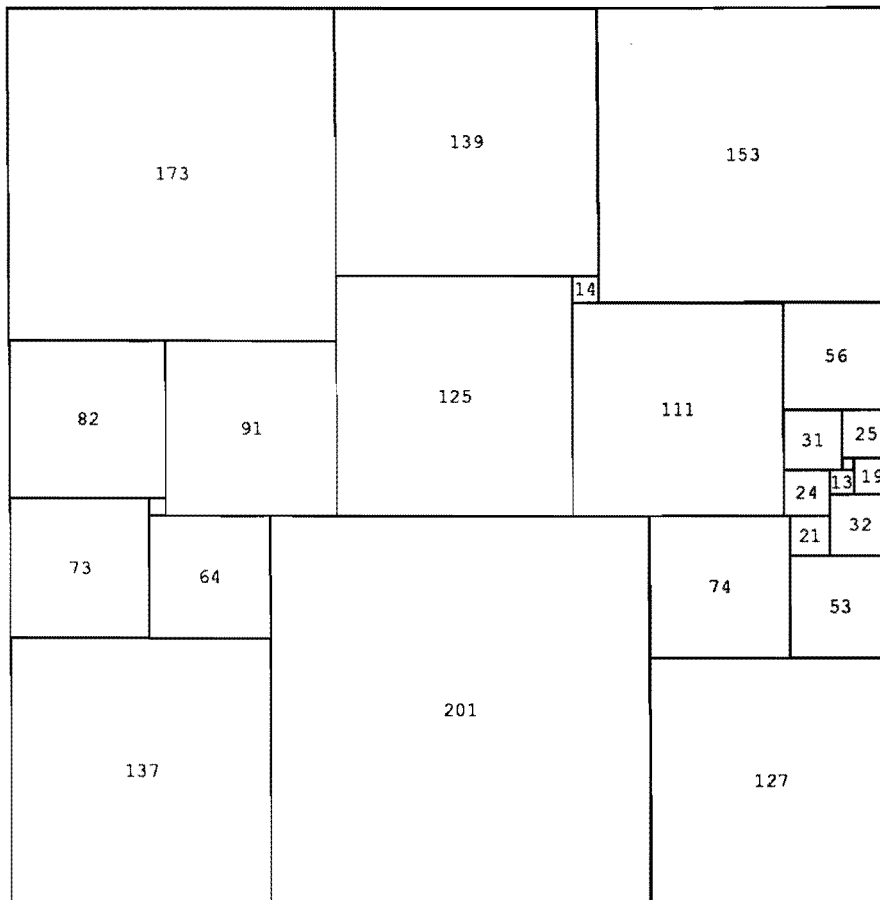
Order: 25

Reduced side: 465

Elements: 6, 9, 13, 14, 19, 21, 24, 25, 31, 32, 53, 56, 64, 73, 74, 82, 91, 111, 125, 127, 137, 139, 153, 173, 201

Code: (173, 139, 153) (125, 14) (111, 56) (82, 91) (31, 25) (6, 19) (24, 13) (32) (73, 9) (64, 201, 74, 21) (53) (137) (127)
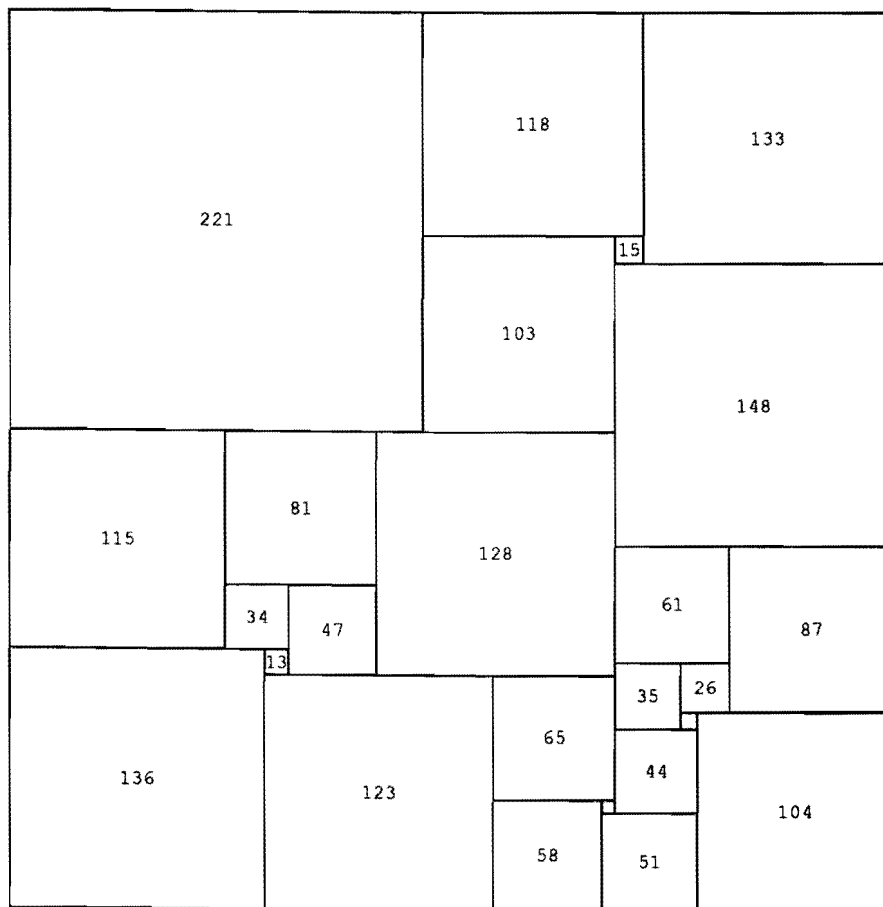
Order: 25

Reduced side: 472

Elements: 7, 9, 13, 15, 26, 34, 35, 44, 47, 51, 58, 61, 65, 81, 87, 103, 104, 115, 118, 123, 128, 133, 136, 148, 221

Code: (221, 118, 133) (103, 15) (148) (115, 81, 128) (61, 87) (34, 47) (136, 13) (35, 26) (123, 65) (9, 104) (44) (58, 7) (51)
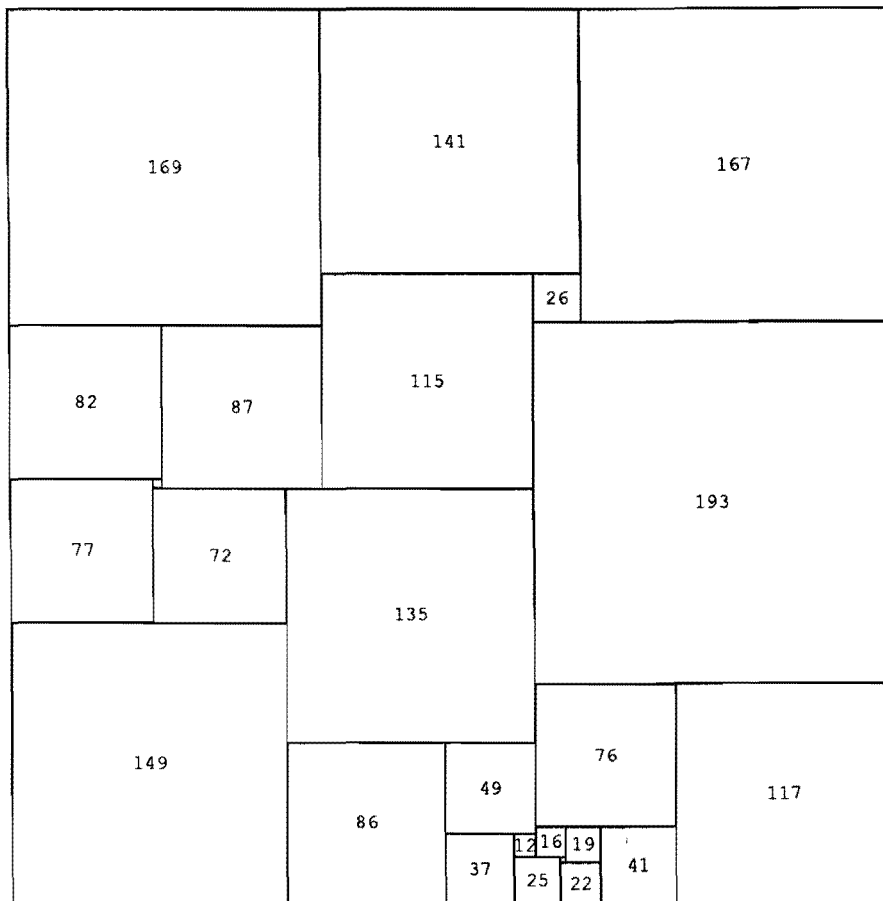
Order: 25

Reduced side: 477

Elements: 3, 5, 12, 16, 19, 22, 25, 26, 37, 41, 49, 72, 76, 77, 82, 86, 87, 115, 117, 135, 141, 149, 167, 169, 193

Code: (169, 141, 167) (115, 26) (193) (82, 87) (77, 5) (72, 135) (149) (76, 117) (86, 49) (16, 19, 41) (37, 12) (25, 3) (22)
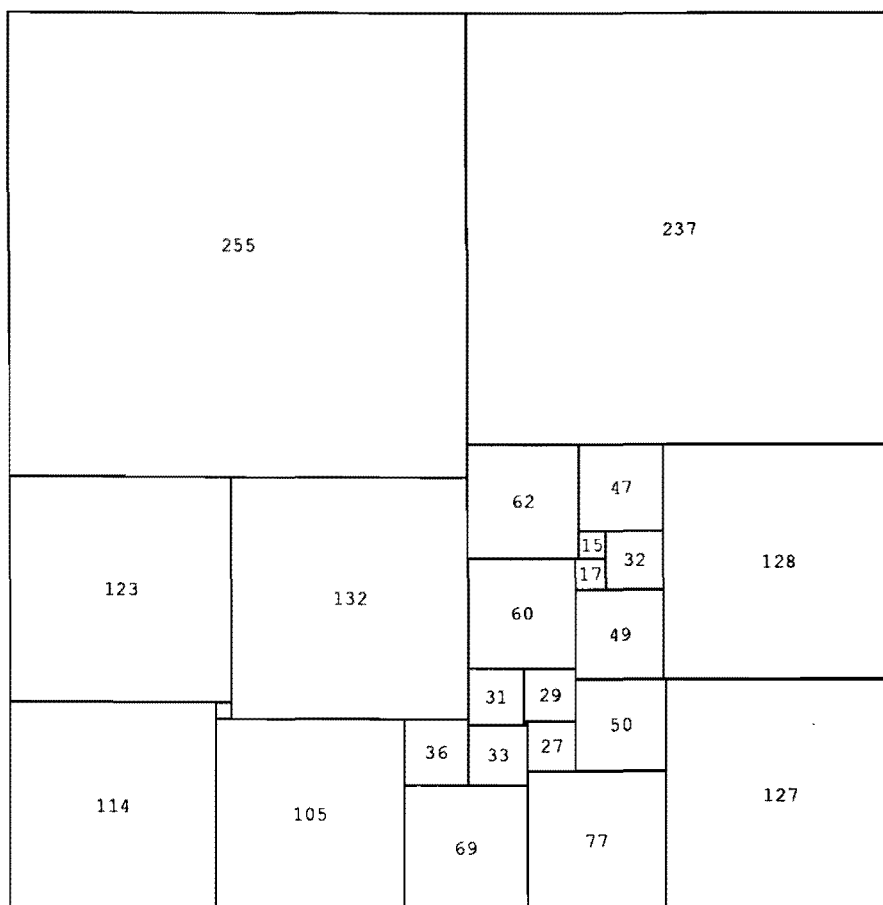
Order: 25

Reduced side: 492

Elements: 2, 9, 15, 17, 27, 29, 31, 32, 33, 36, 47, 49, 50, 60, 62, 69, 77, 105, 114, 123, 127, 128, 132, 237, 255

Code: (255, 237) (62, 47, 128) (123, 132) (15, 32) (60, 17) (49) (31, 29) (50, 127) (114, 9) (105, 36) (2, 27) (33) (77) (69)
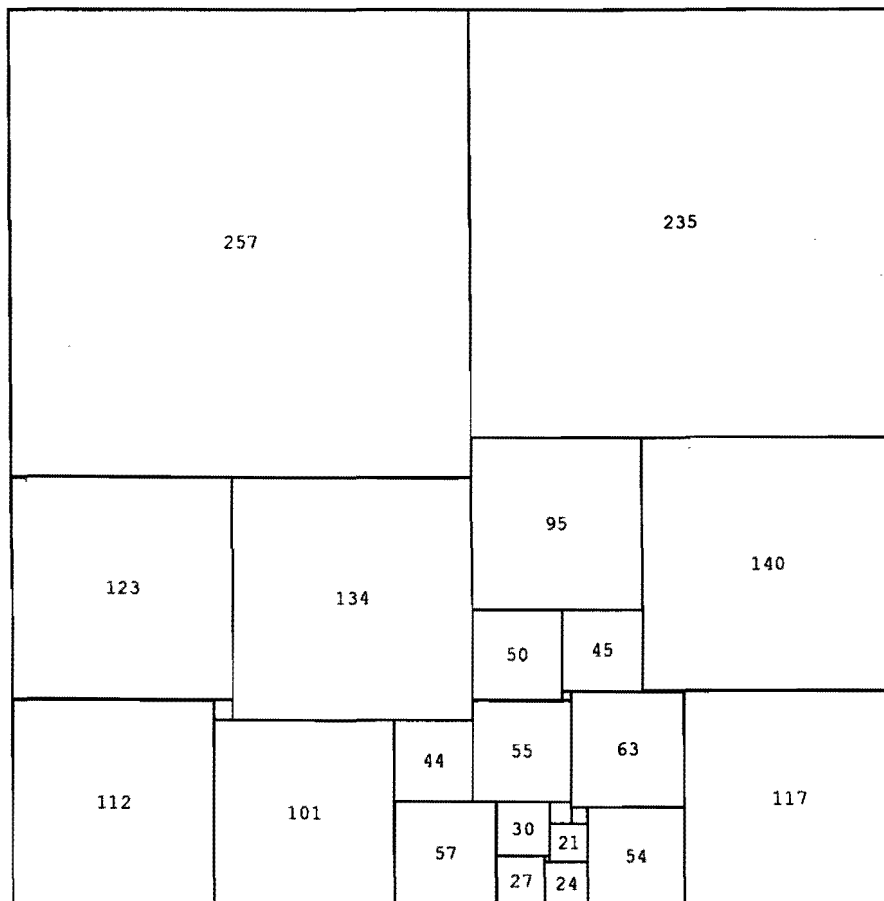
Order: 25

Reduced side: 492

Elements: 3, 5, 9, 11, 12, 21, 24, 27, 30, 44, 45, 50, 54, 55, 57, 63, 95, 101, 112, 117, 123, 134, 140, 235, 257

Code: (257, 235) (95, 140) (123, 134) (50, 45) (5, 63, 117) (112, 11) (55) (101, 44) (57, 30, 12) (9, 54) (21) (27, 3) (24)
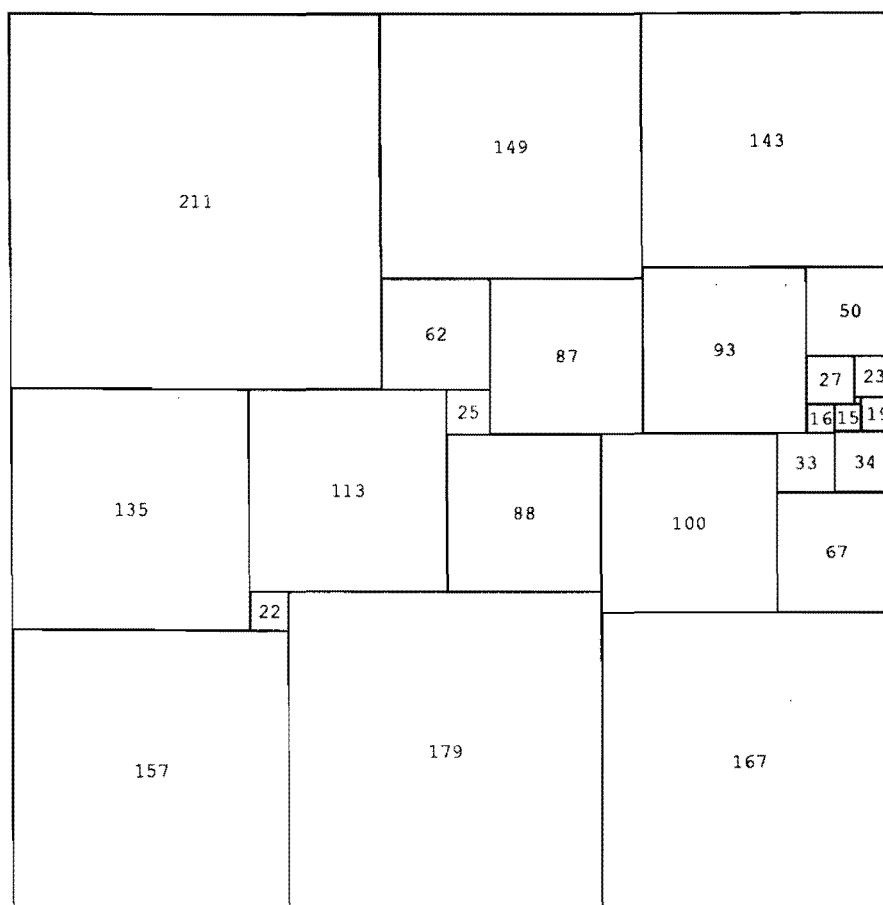
Order: 25

Reduced side: 503

Elements: 4, 15, 16, 19, 22, 23, 25, 27, 33, 34, 50, 62, 67, 87, 88, 93, 100, 113, 135, 143, 149, 157, 167, 179, 211

Code: (211, 149, 143) (93, 50) (62, 87) (27, 23) (135, 113, 25) (4, 19) (16, 15) (34) (88, 100, 33) (67) (22, 179) (167) (157)
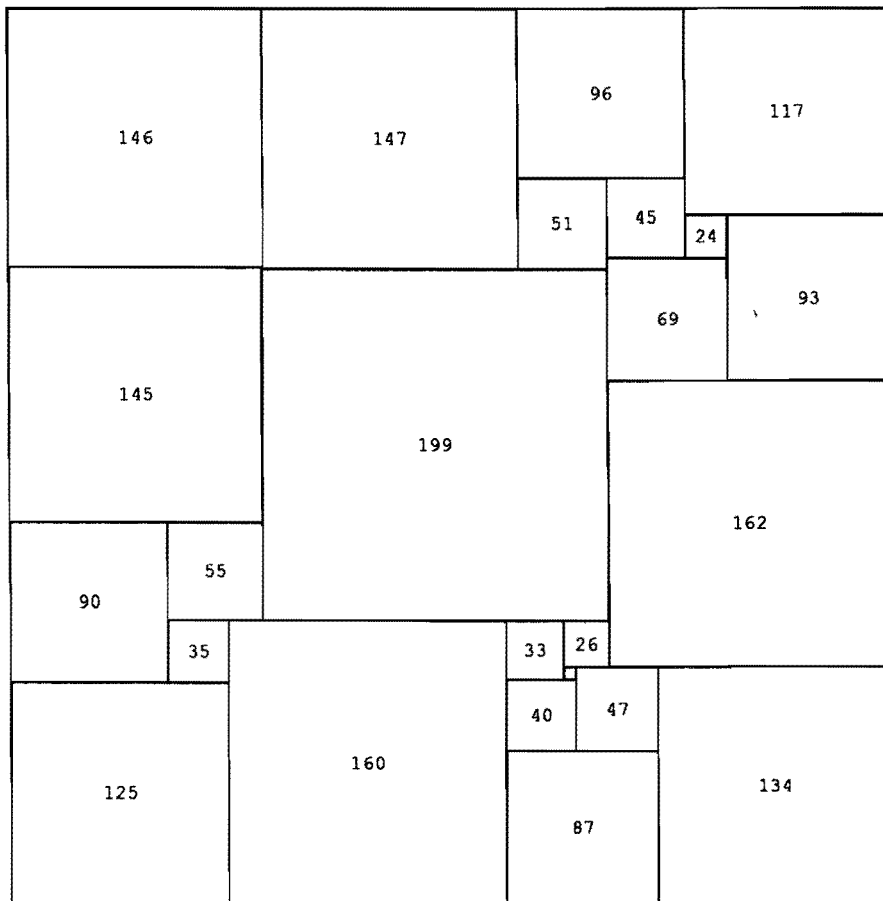
Order: 25

Reduced side: 506

Elements: 1, 7, 24, 26, 33, 35, 40, 45, 47, 51, 55, 69, 87, 90, 93, 96, 117, 125, 134, 145, 146, 147, 160, 162, 199

Code: (146, 147, 96, 117) (51, 45) (24, 93) (69) (145, 1) (199) (162) (90, 55) (35, 160, 33, 26) (7, 47, 134) (40) (125) (87)
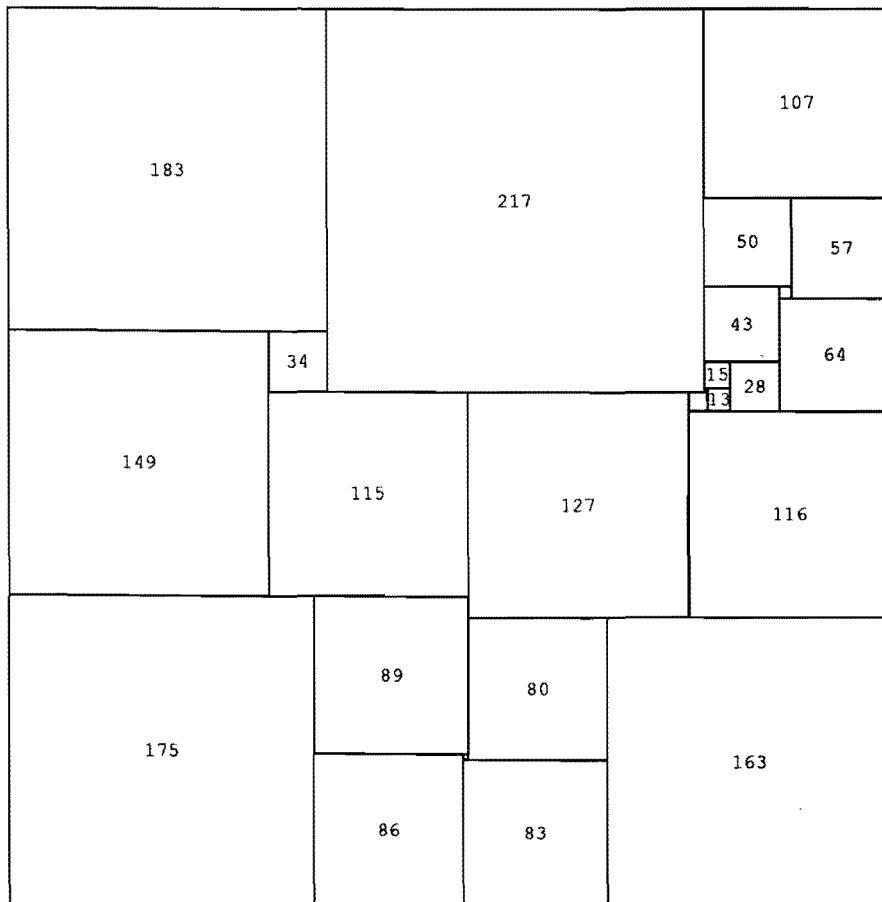
Order: 25

Reduced side: 507

Elements: 2, 3, 7, 11, 13, 15, 28, 34, 43, 50, 57, 64, 80, 83, 86, 89, 107, 115, 116, 127, 149, 163, 175, 183, 217

Code: (183, 217, 107) (50, 57) (43, 7) (64) (149, 34) (15, 28) (2, 13) (115, 127, 11) (116) (175, 89) (80, 163) (86, 3) (83)
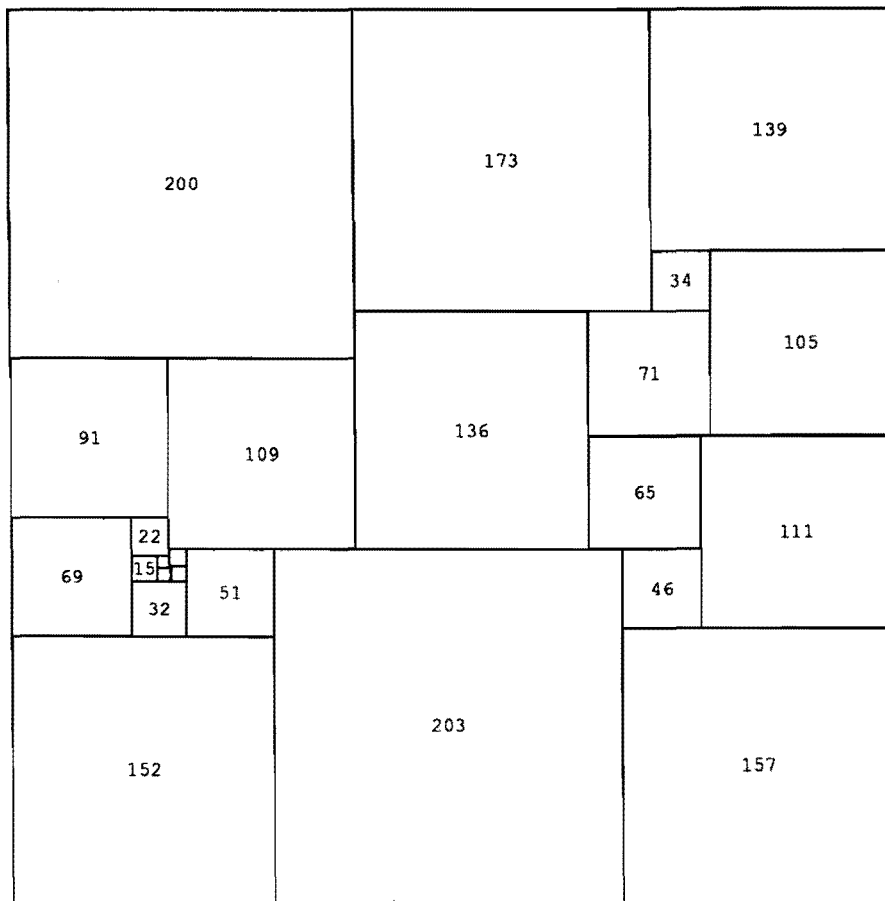
Order: 25

Reduced side: 512

Elements: 1, 7, 8, 9, 10, 15, 22, 32, 34, 46, 51, 65, 69, 71, 91, 105, 109, 111, 136, 139, 152, 157, 173, 200, 203

Code: (200, 173, 139) (34, 105) (136, 71) (91, 109) (65, 111) (69, 22) (10, 51, 203, 46) (15, 7) (1, 9) (8) (32) (157) (152)
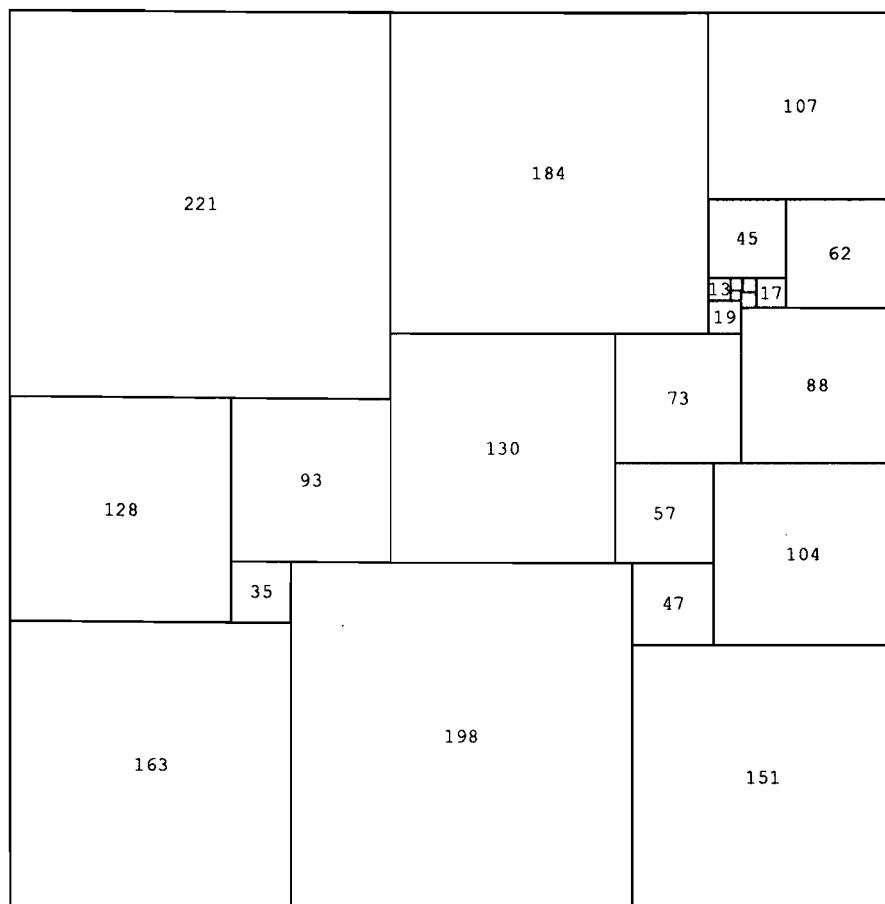
Order: 25

Reduced side: 512

Elements: 1, 6, 7, 8, 9, 13, 17, 19, 35, 45, 47, 57, 62, 73, 88, 93, 104, 107, 128, 130, 151,
               163, 184, 198, 221

Code: (221, 184, 107) (45, 62) (13, 7, 8, 17) (6, 1) (9) (19) (88) (130, 73) (128, 93)
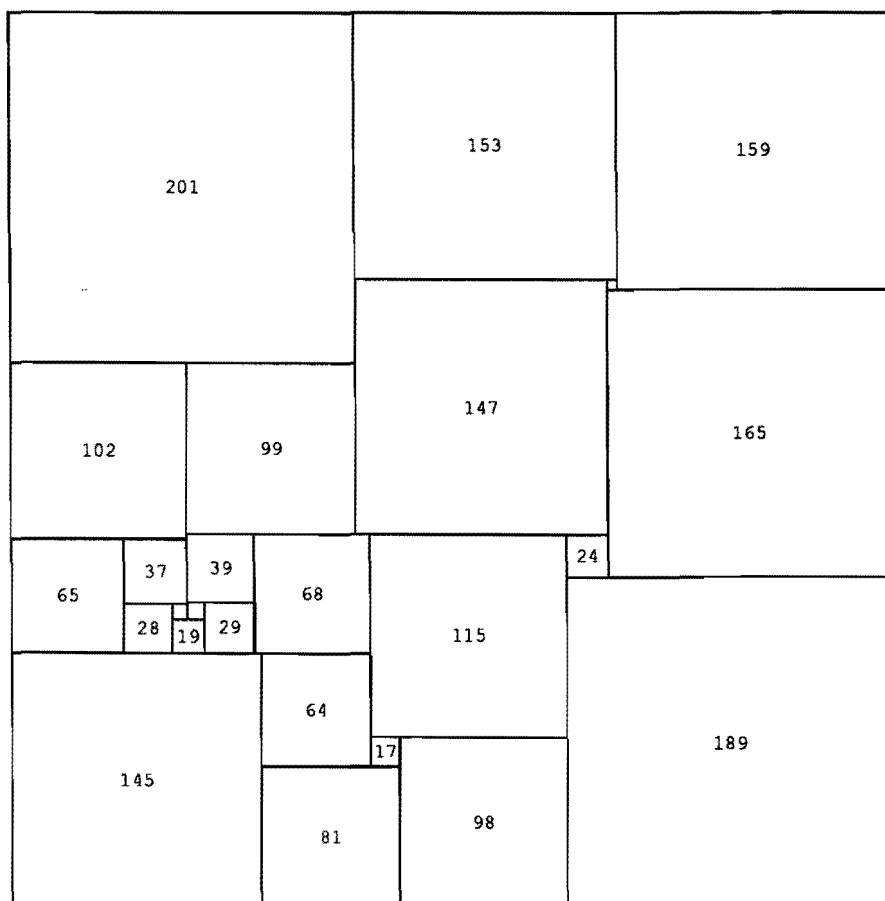   (57, 104) (35, 198, 47) (163) (151)

Order: 25

Reduced side: 513

Elements: 6, 9, 10, 17, 19, 24, 28, 29, 37, 39, 64, 65, 68, 81, 98, 99, 102, 115, 145, 147, 153, 159, 165, 189, 201

Code: (201, 153, 159) (147, 6) (165) (102, 99) (39, 68, 115, 24) (65, 37) (189) (10, 29) (28, 9) (19) (145, 64) (17, 98) (81)
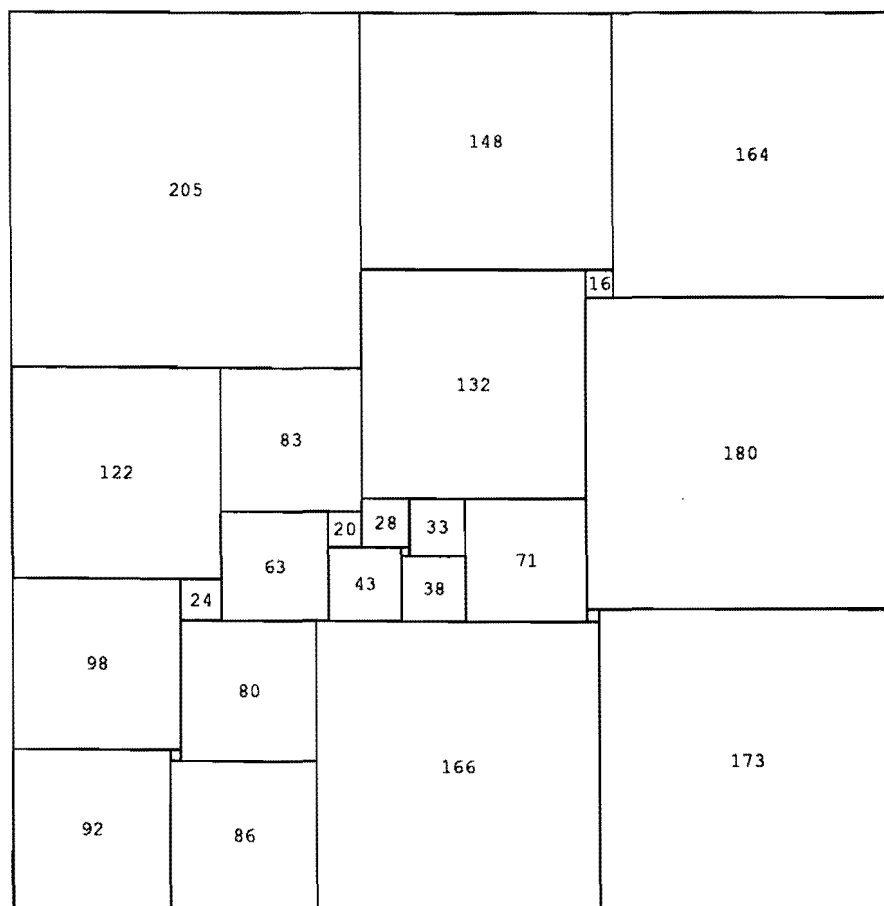
Order: 25

Reduced side: 517

Elements: 5, 6, 7, 16, 20, 24, 28, 33, 38, 43, 63, 71, 80, 83, 86, 92, 98, 122, 132, 148,
                164, 166, 173, 180, 205

Code: (205, 148, 164) (132, 16) (180) (122, 83) (28, 33, 71) (63, 20) (43, 5) (38) (98,
                24) (7, 173) (80, 166) (92, 6) (86)
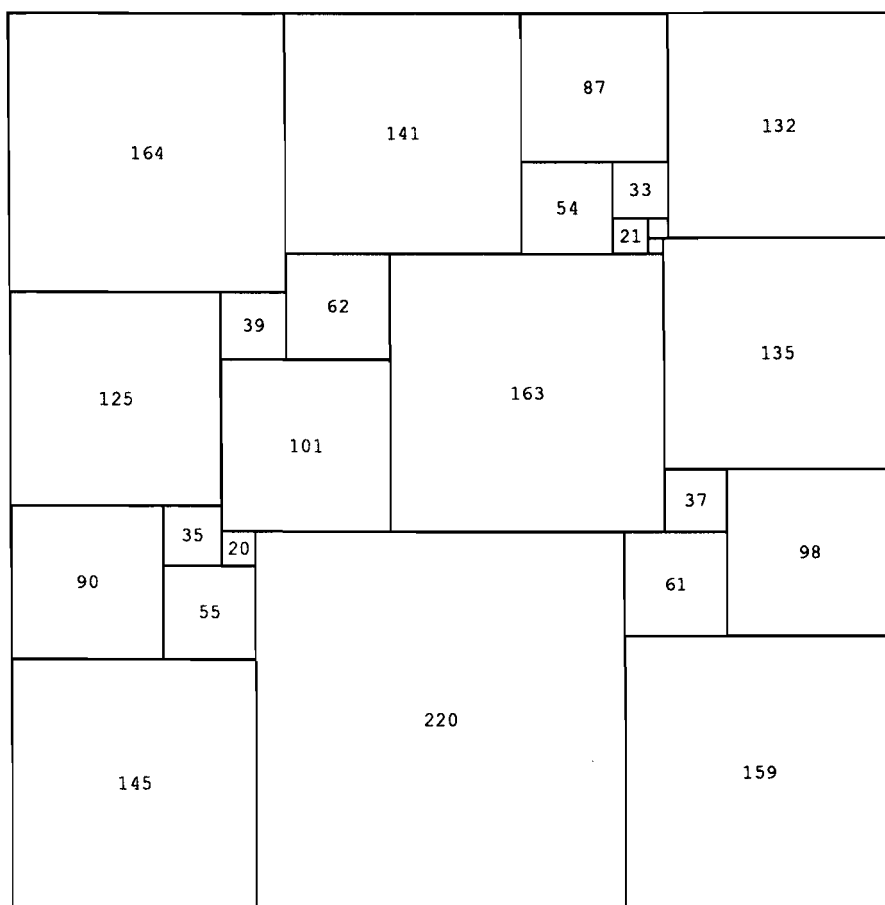
Order: 25

Reduced side: 524

Elements: 9, 12, 20, 21, 33, 35, 37, 39, 54, 55, 61, 62, 87, 90, 98, 101, 125, 132, 135, 141,
                 145, 159, 163, 164, 220

Code: (164, 141, 87, 132) (54, 33) (21, 12) (9, 135) (62, 163) (125, 39) (101) (37,
                 98) (90, 35) (20, 220, 61) (55) (159) (145)
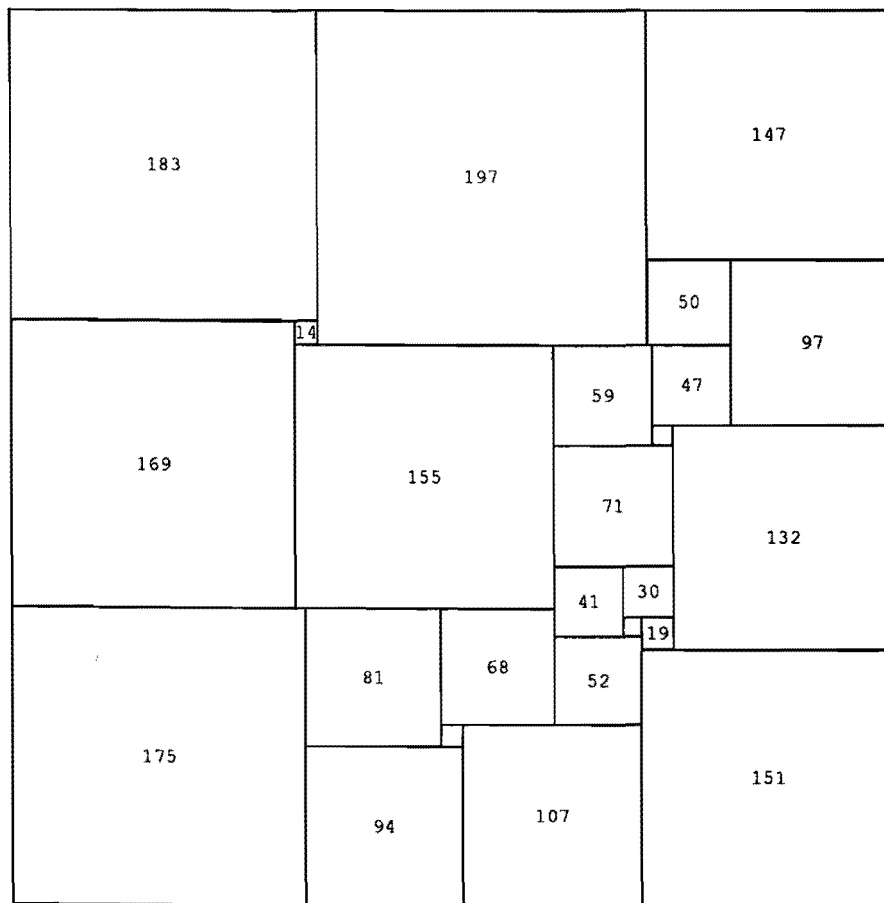
Order: 25

Reduced side: 527

Elements: 11, 12, 13, 14, 19, 30, 41, 47, 50, 52, 59, 68, 71, 81, 94, 97, 107, 132, 147, 151, 155, 169, 175, 183, 197

Code:.   (183, 197, 147) (50, 97) (169, 14) (155, 59, 47) (12, 132) (71) (41, 30) (175, 81, 68) (11, 19) (52) (151) (13, 107) (94)
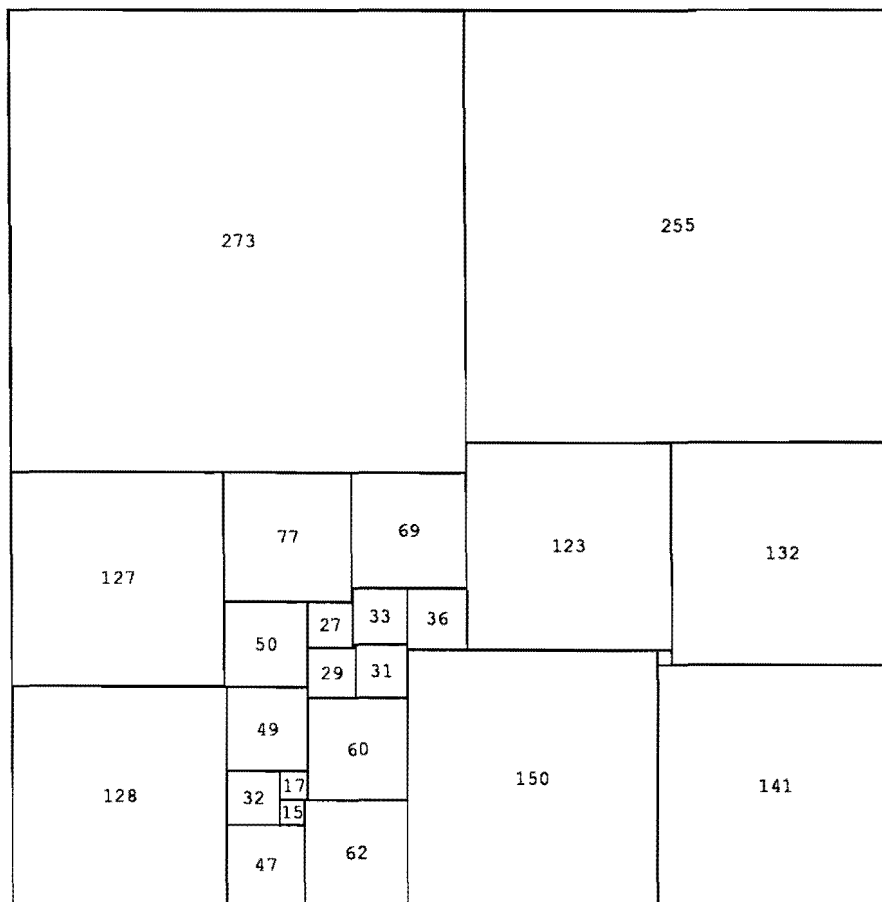
Order: 25

Reduced side: 528

Elements: 2, 9, 15, 17, 27, 29, 31, 32, 33, 36, 47, 49, 50, 60, 62, 69, 77, 123, 127, 128, 132, 141, 150, 255, 273

Code: (273, 255) (123, 132) (127, 77, 69) (33, 36) (50, 27) (2, 31) (29) (150, 9) (141) (128, 49) (60) (32, 17) (15, 62) (47)
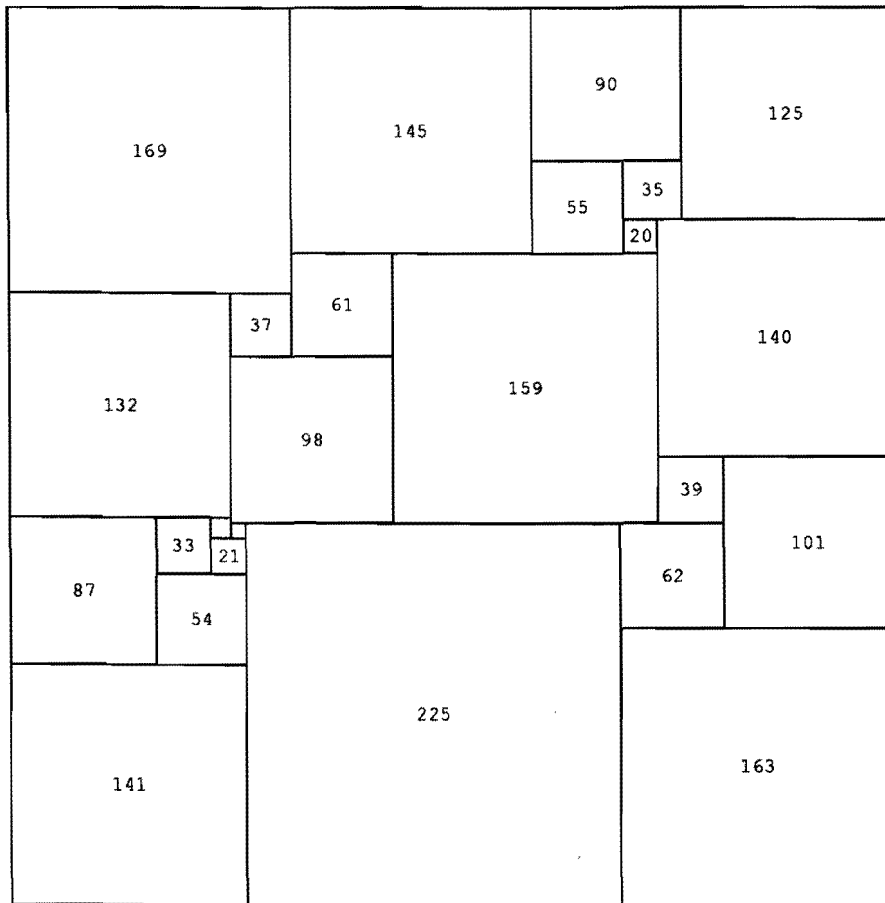
Order: 25

Reduced side: 529

Elements: 9, 12, 20, 21, 33, 35, 37, 39, 54, 55, 61, 62, 87, 90, 98, 101, 125, 132, 140, 141, 145, 159, 163, 169, 225

Code: (169, 145, 90, 125) (55, 35) (20, 140) (61, 159) (132, 37) (98) (39, 101) (87, 33, 12) (9, 225, 62) (21) (54) (163) (141)
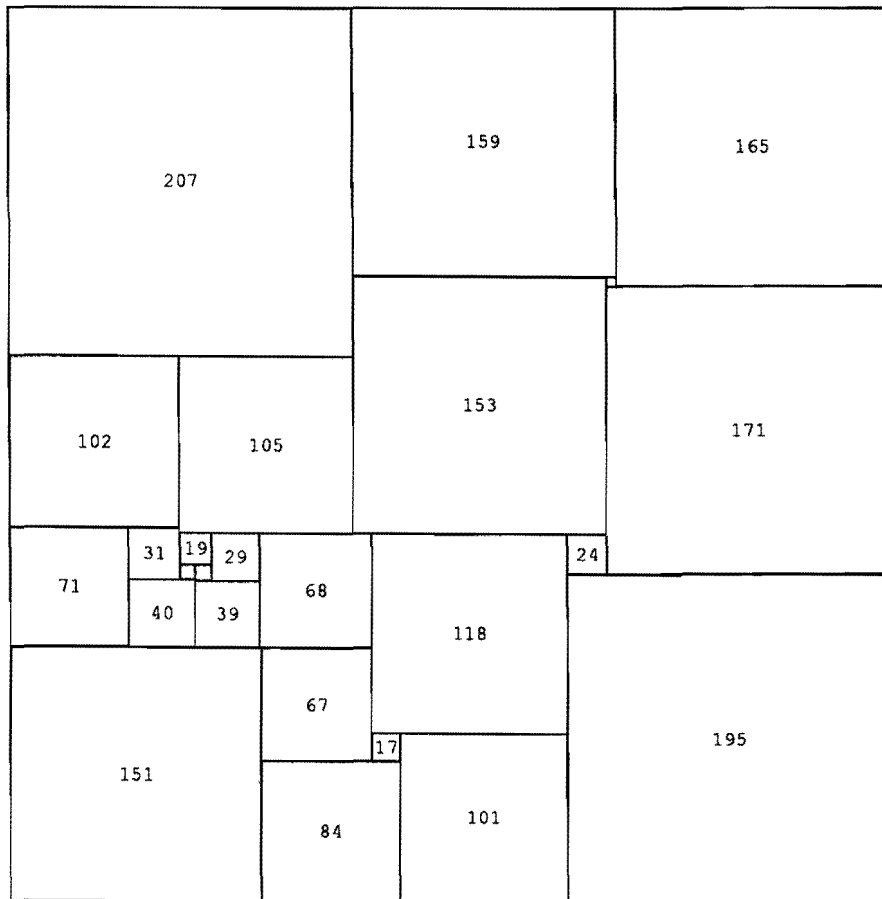
Order: 25

Reduced side: 531

Elements: 6, 9, 10, 17, 19, 24, 29, 31, 39, 40, 67, 68, 71, 84, 101, 102, 105, 118, 151, 153, 159, 165, 171, 195, 207

Code: (207, 159, 165) (153, 6) (171) (102, 105) (71, 31) (19, 29, 68, 118, 24) (9, 10) (195) (40) (39) (151, 67) (17, 101) (84)
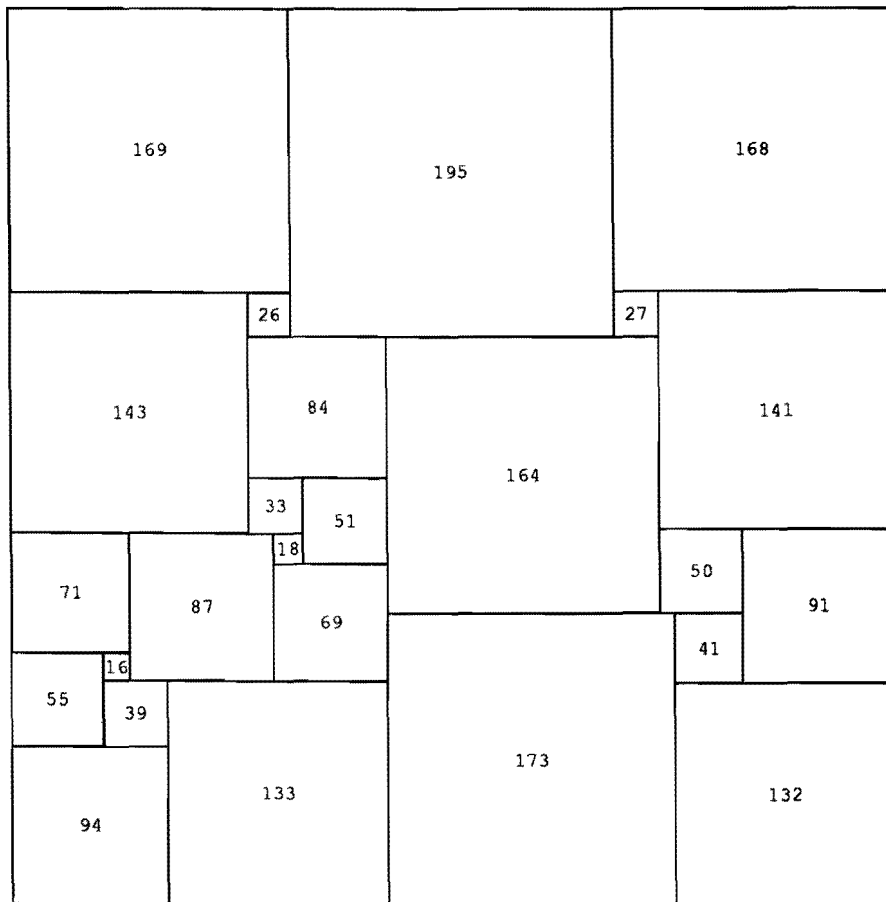
Order: 25

Reduced side: 532

Elements: 16, 18, 26, 27, 33, 39, 41, 50, 51, 55, 69, 71, 84, 87, 91, 94, 132, 133, 141, 143, 164, 168, 169, 173, 195

Code: (169, 195, 168) (27, 141) (143, 26) (84, 164) (33, 51) (50, 91) (71, 87, 18) (69) (173, 41) (55, 16) (39, 133) (132) (94)
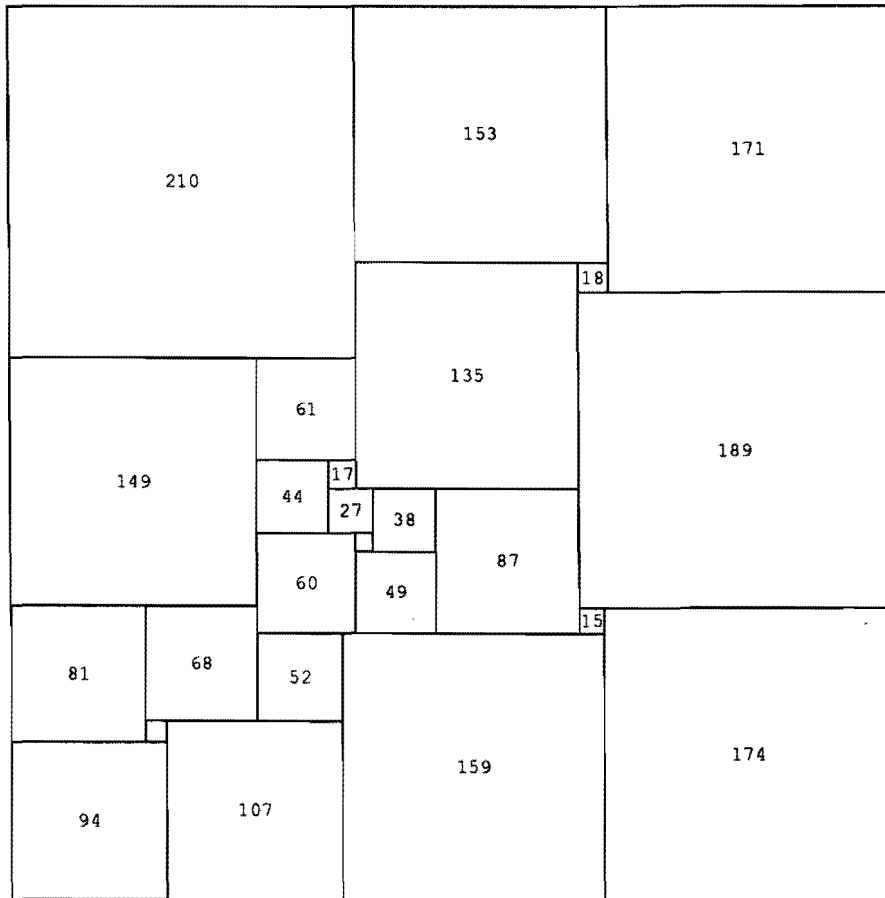
Order: 25

Reduced side: 534

Elements: 11, 13, 15, 17, 18, 27, 38, 44, 49, 52, 60, 61, 68, 81, 87, 94, 107, 135, 149, 153, 159, 171, 174, 189, 210

Code: (210, 153, 171) (135, 18) (189) (149, 61) (44, 17) (27, 38, 87) (60, 11) (49) (81, 68) (15, 174) (52, 159) (13, 107) (94)
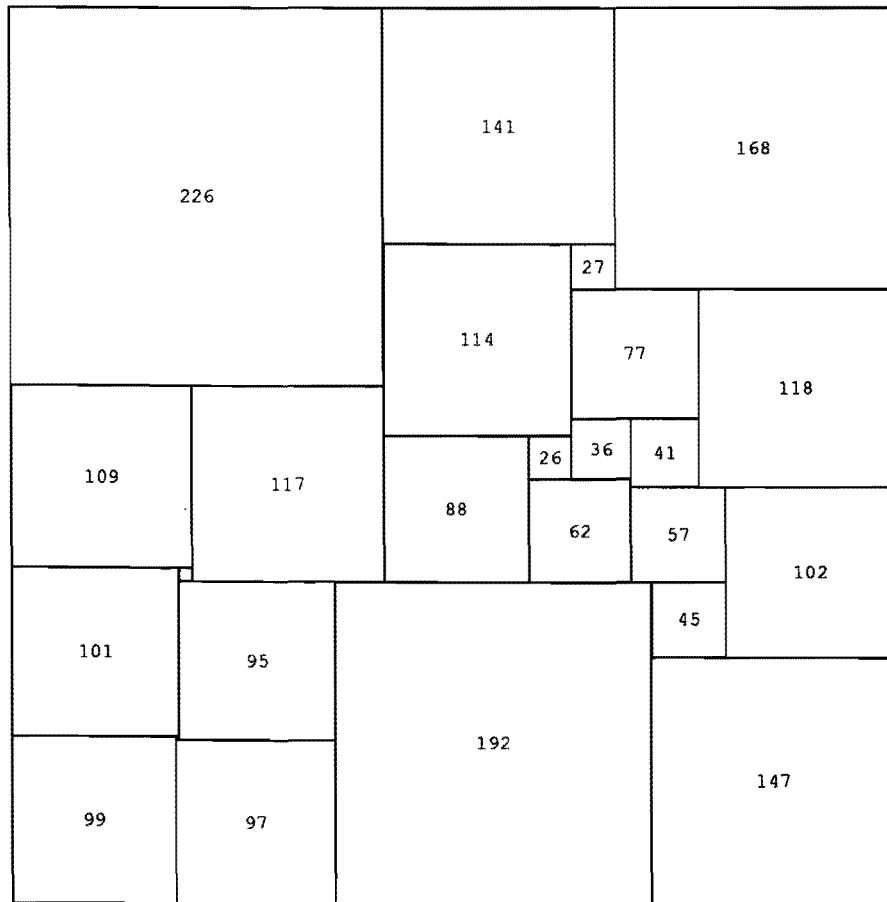
Order: 25

Reduced side: 535

Elements: 2, 8, 26, 27, 36, 41, 45, 57, 62, 77, 88, 95, 97, 99, 101, 102, 109, 114, 117, 118, 141, 147, 168, 192, 226

Code: (226, 141, 168) (114, 27) (77, 118) (109, 117) (36, 41) (88, 26) (62) (57, 102) (101, 8) (95, 192, 45) (147) (99, 2) (97)
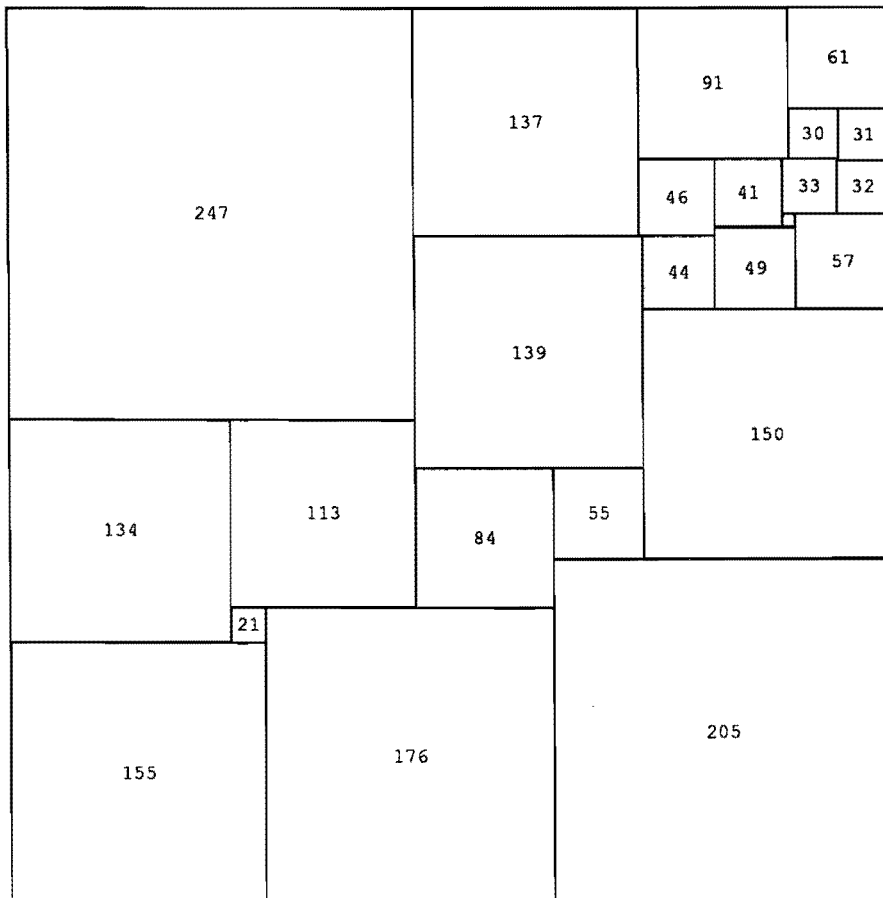
Order: 25

Reduced side: 536

Elements: 1, 8, 21, 30, 31, 32, 33, 41, 44, 46, 49, 55, 57, 61, 84, 91, 113, 134, 137, 139, 150, 155, 176, 205, 247

Code: (247, 137, 91, 61) (30, 31) (46, 41, 33, 1) (32) (8, 57) (49) (139, 44) (150) (134, 113) (84, 55) (205) (21, 176) (155)
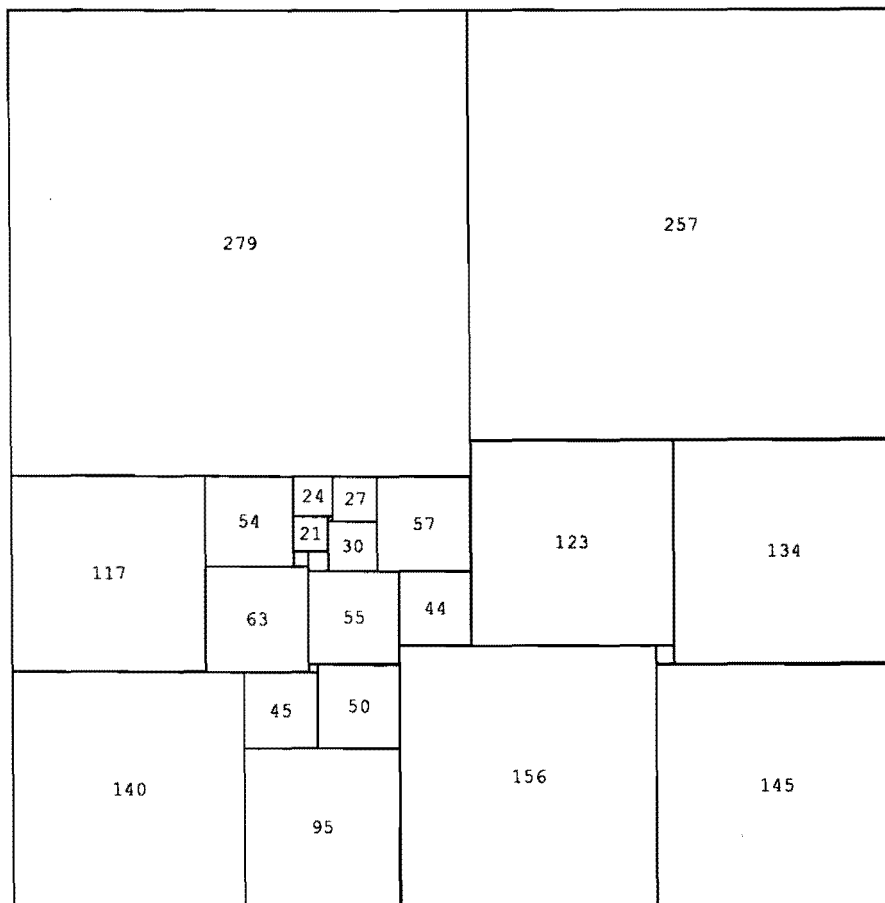
Order: 25

Reduced side: 536

Elements: 3, 5, 9, 11, 12, 21, 24, 27, 30, 44, 45, 50, 54, 55, 57, 63, 95, 117, 123, 134, 140, 145, 156, 257, 279

Code: (279, 257) (123, 134) (117, 54, 24, 27, 57) (21, 3) (30) (9, 12) (63) (55, 44) (156, 11) (5, 50) (145) (140, 45) (95)
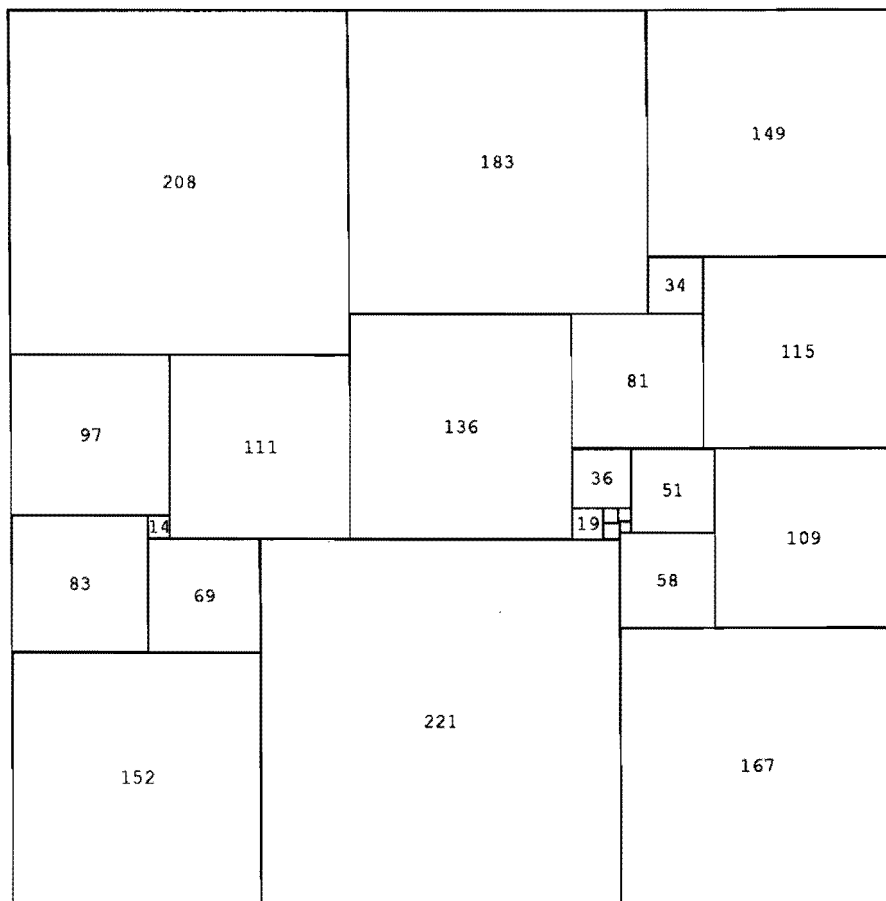
Order: 25

Reduced side: 540

Elements: 1, 7, 8, 9, 10, 14, 19, 34, 36, 51, 58, 69, 81, 83, 97, 109, 111, 115, 136, 149, 152, 167, 183, 208, 221

Code: (208, 183, 149) (34, 115) (136, 81) (97, 111) (36, 51, 109) (19, 9, 8) (83, 14) (1, 7) (10) (58) (69, 221) (167) (152)
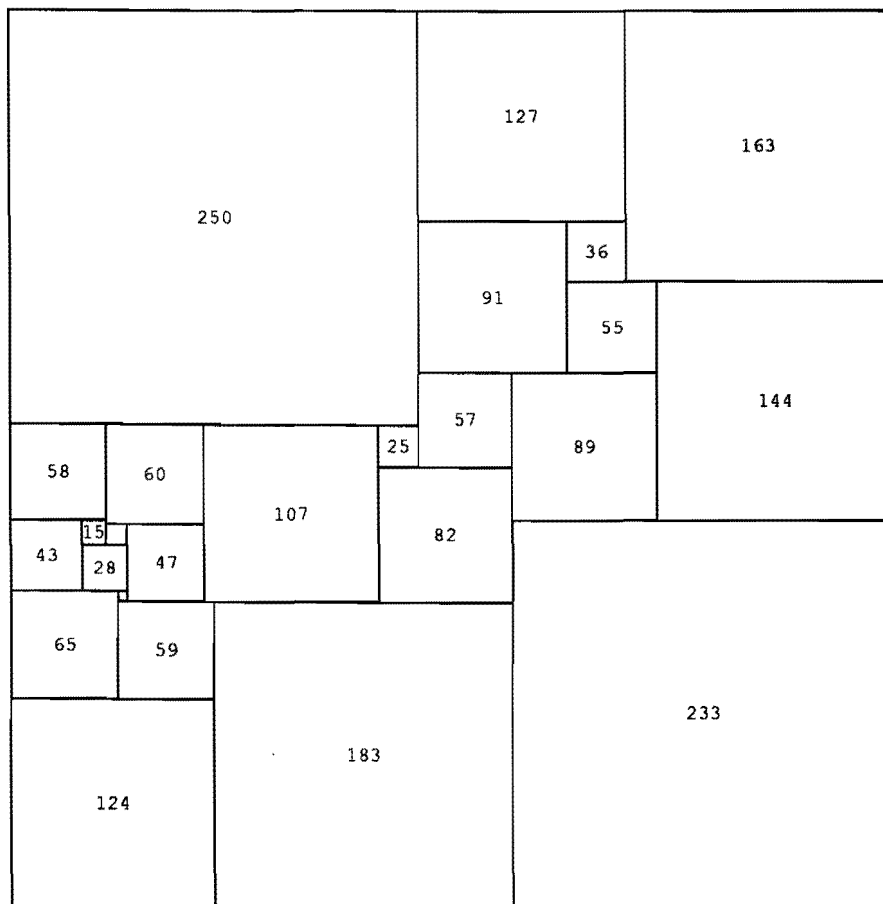
Order: 25

Reduced side: 540

Elements: 6, 13, 15, 25, 28, 36, 43, 47, 55, 57, 58, 59, 60, 65, 82, 89, 91, 107, 124, 127, 144, 163, 183, 233, 250

Code: (250, 127, 163) (91, 36) (55, 144) (57, 89) (58, 60, 107, 25) (82) (233) (43, 15) (13, 47) (28) (65, 6) (59, 183) (124)
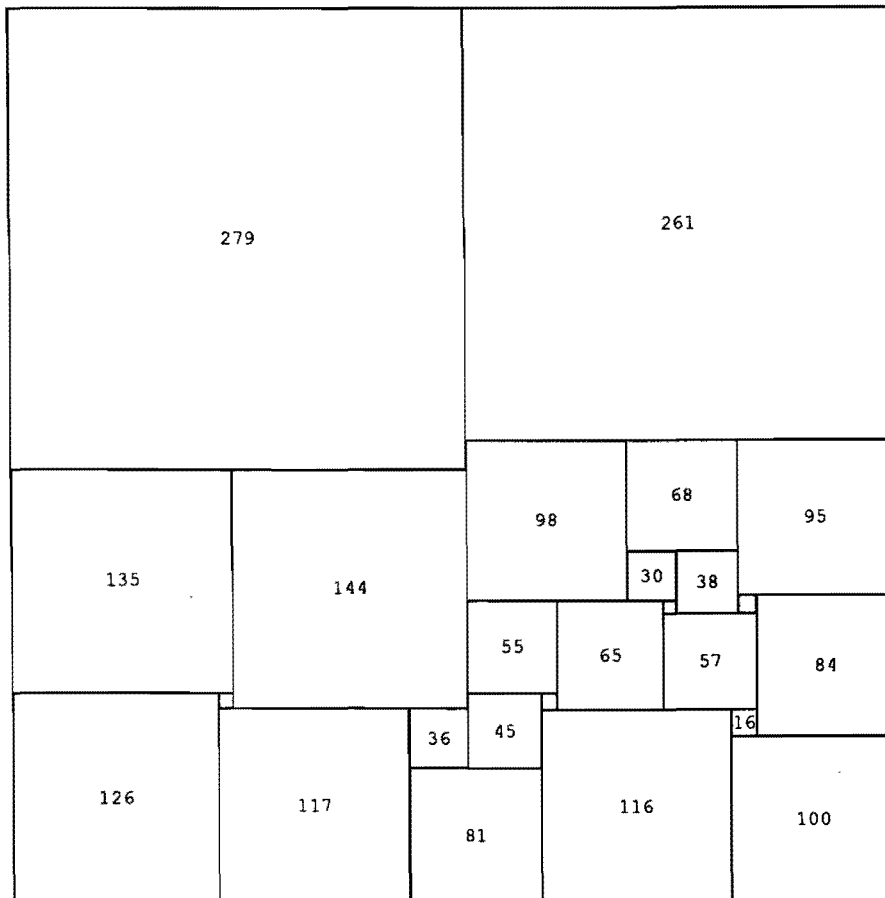
Order: 25

Reduced side: 540

Elements: 8, 9, 10, 11, 16, 30, 36, 38, 45, 55, 57, 65, 68, 81, 84, 95, 98, 100, 116, 117, 126, 135, 144, 261, 279

Code: (279, 261) (98, 68, 95) (135, 144) (30, 38) (11, 84) (55, 65, 8) (57) (126, 9) (45, 10) (117, 36) (116, 16) (100) (81)
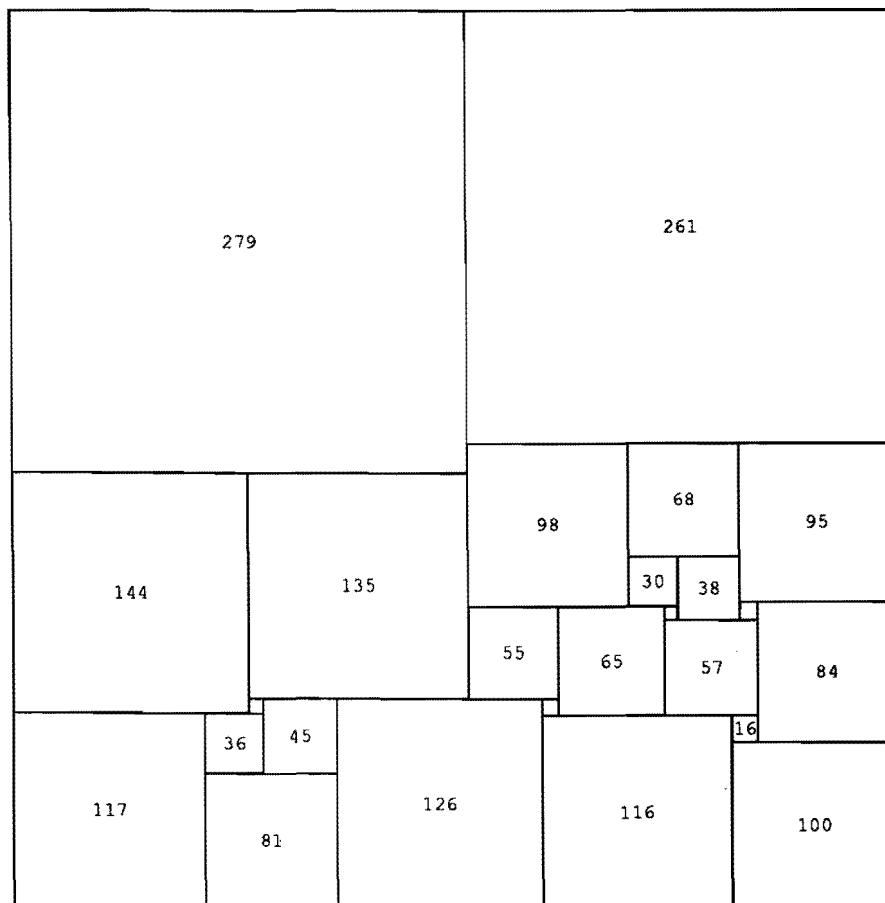
Order: 25

Reduced side: 540

Elements: 8, 9, 10, 11, 16, 30, 36, 38, 45, 55, 57, 65, 68, 81, 84, 95, 98, 100, 116, 117, 126, 135, 144, 261, 279

Code: (279, 261) (98, 68, 95) (144, 135) (30, 38) (11, 84) (55, 65, 8) (57) (9, 45, 126, 10) (117, 36) (116, 16) (100) (81)
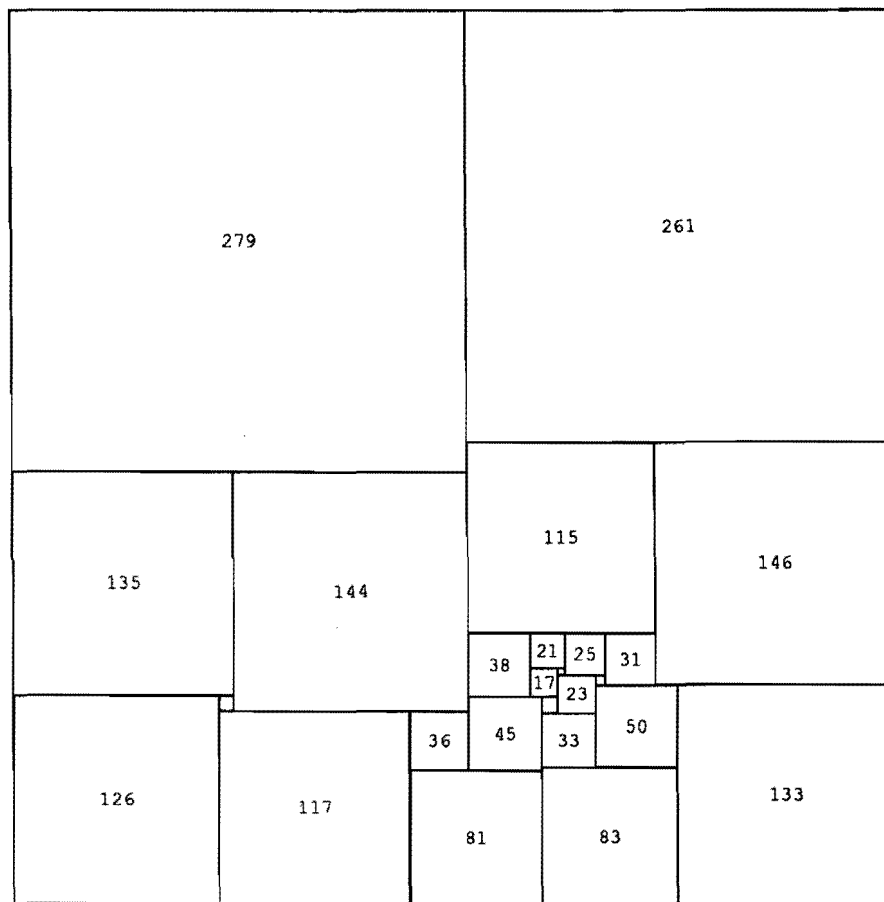
Order: 25

Reduced side: 540

Elements: 4, 6, 9, 10, 17, 21, 23, 25, 31, 33, 36, 38, 45, 50, 81, 83, 115, 117, 126, 133, 135, 144, 146, 261, 279

Code: (279, 261) (115, 146) (135, 144) (38, 21, 25, 31) (17, 4) (23, 6) (50, 133) (126, 9) (45, 10) (117, 36) (33) (83) (81)
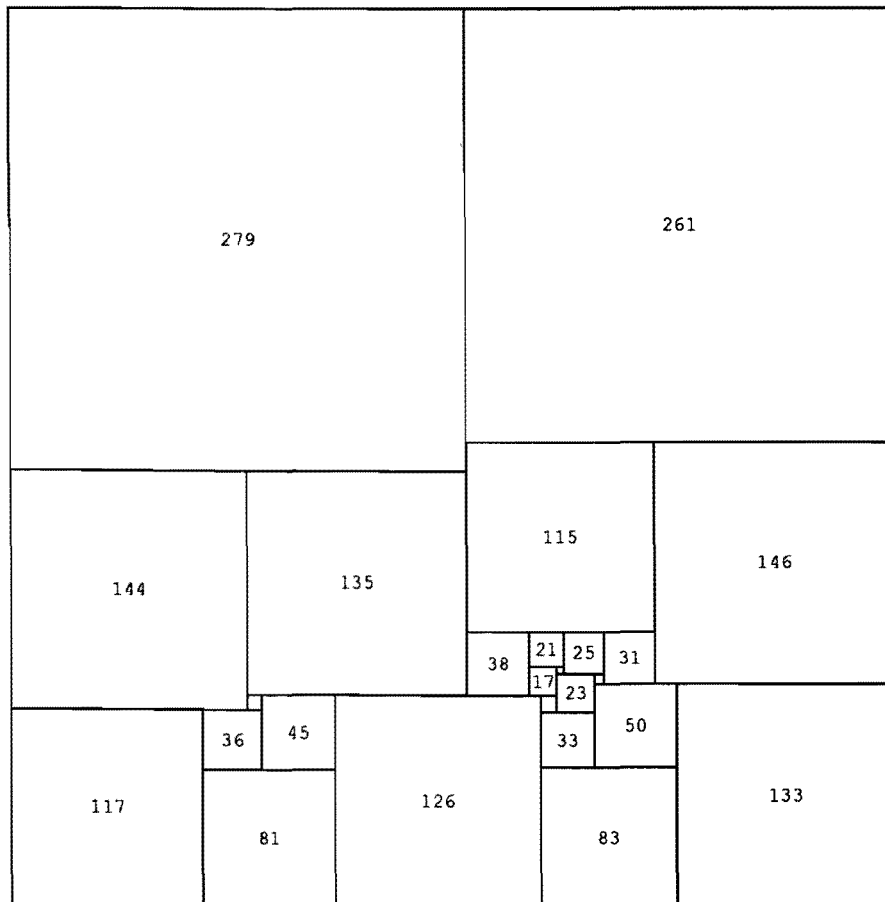
Order: 25

Reduced side: 540

Elements: 4, 6, 9, 10, 17, 21, 23, 25, 31, 33, 36, 38, 45, 50, 81, 83, 115, 117, 126, 133, 135, 144, 146, 261, 279

Code: (279, 261) (115, 146) (144, 135) (38, 21, 25, 31) (17, 4) (23, 6) (50, 133) (9, 45, 126, 10) (117, 36) (33) (83) (81)
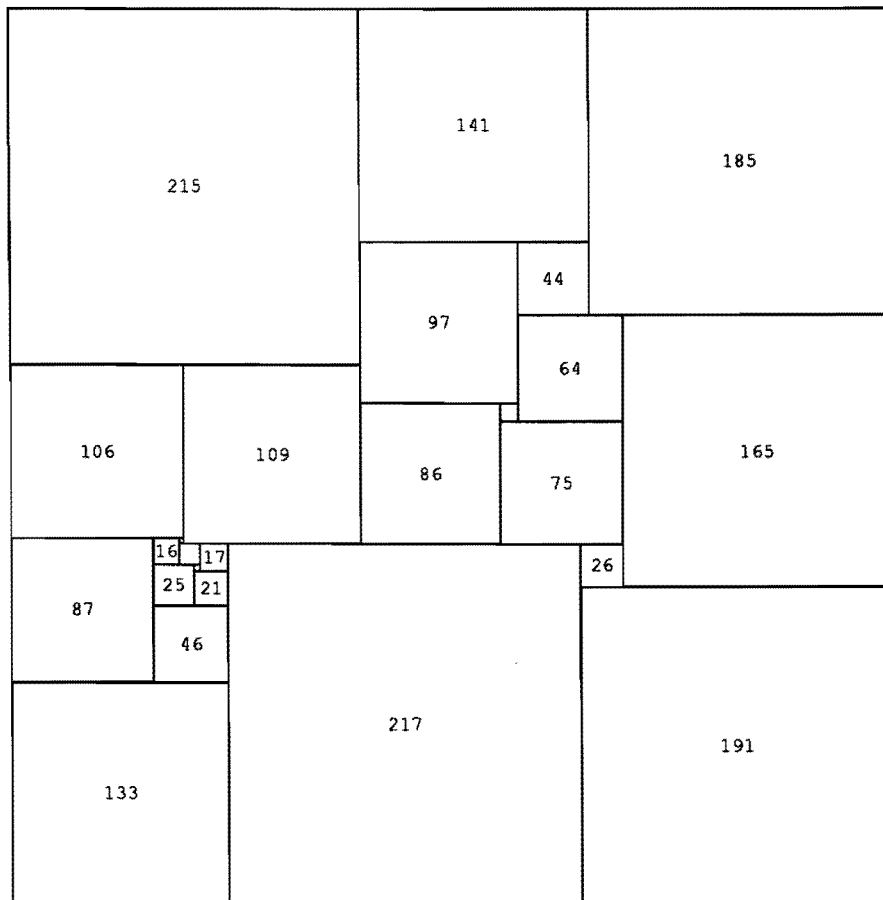
Order: 25

Reduced side: 541

Elements: 3, 4, 11, 13, 16, 17, 21, 25, 26, 44, 46, 64, 75, 86, 87, 97, 106, 109, 133, 141, 165, 185, 191, 215, 217

Code: (215, 141, 185) (97, 44) (64, 165) (106, 109) (86, 11) (75) (87, 16, 3) (13, 17, 217, 26) (25, 4) (21) (191) (46) (133)
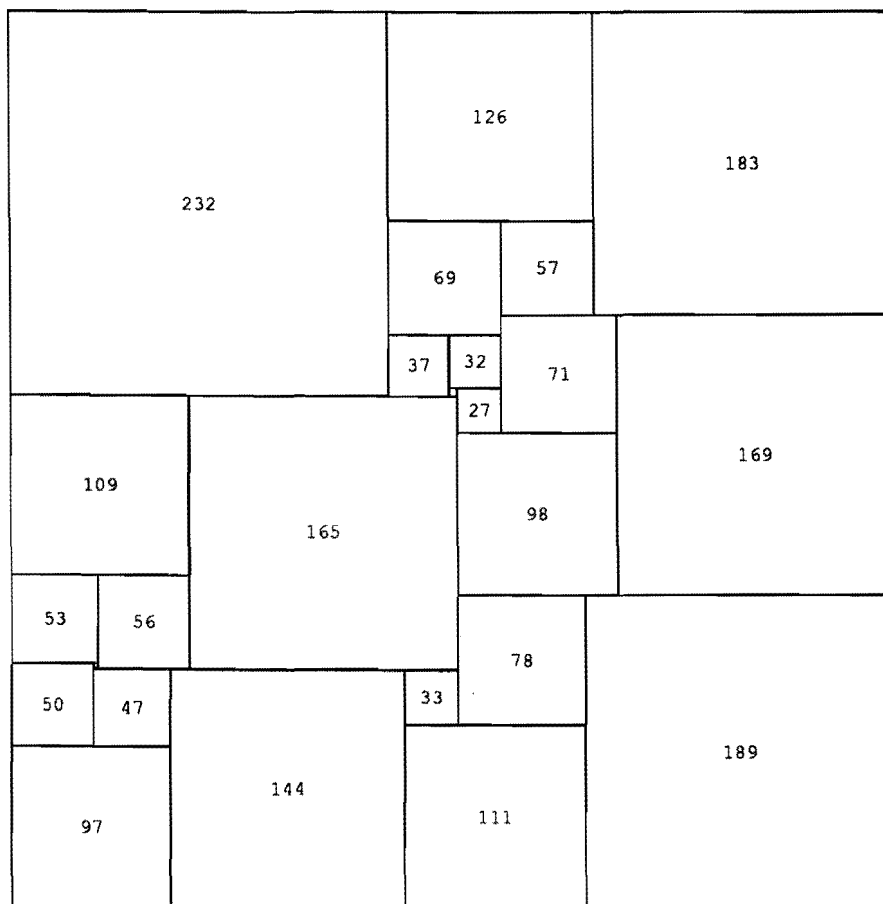
Order: 25

Reduced side: 541

Elements: 3, 5, 27, 32, 33, 37, 47, 50, 53, 56, 57, 69, 71, 78, 97, 98, 109, 111, 126, 144, 165, 169, 183, 189, 232

Code: (232, 126, 183) (69, 57) (71, 169) (37, 32) (5, 27) (109, 165) (98) (53, 56) (78, 189) (50, 3) (47, 144, 33) (111) (97)
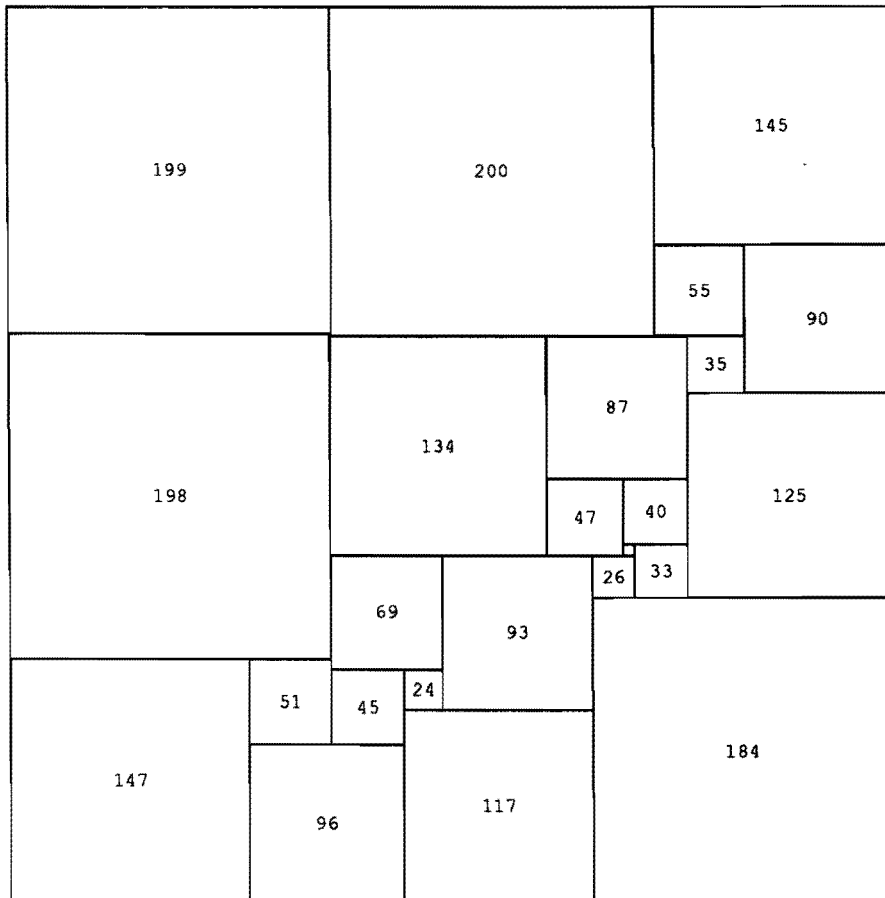
Order: 25

Reduced side: 544

Elements: 1, 7, 24, 26, 33, 35, 40, 45, 47, 51, 55, 69, 87, 90, 93, 96, 117, 125, 134, 145, 147, 184, 198, 199, 200

Code: (199, 200, 145) (55, 90) (198, 1) (134, 87, 35) (125) (47, 40) (7, 33) (69, 93, 26) (184) (147, 51) (45, 24) (117) (96)
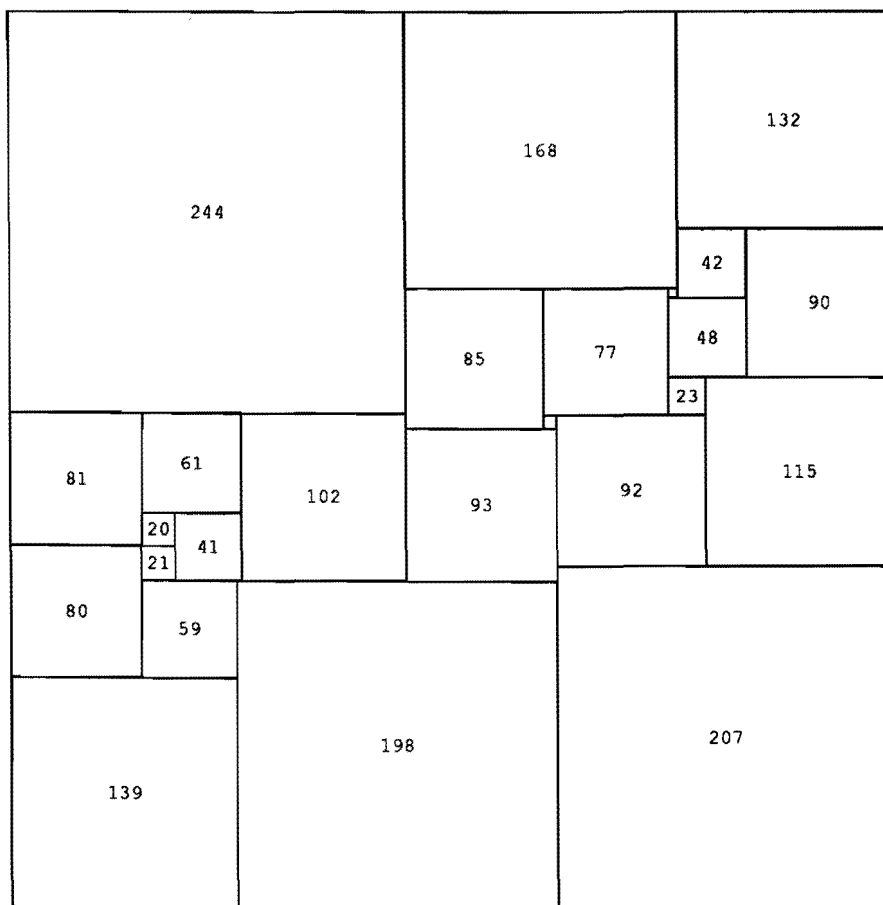
Order: 25

Reduced side: 544

Elements: 6, 8, 20, 21, 23, 41, 42, 48, 59, 61, 77, 80, 81, 85, 90, 92, 93, 102, 115, 132, 139, 168, 198, 207, 244

Code: (244, 168, 132) (42, 90) (85, 77, 6) (48) (23, 115) (81, 61, 102) (8, 92) (93) (20, 41) (80, 21) (207) (59, 198) (139)
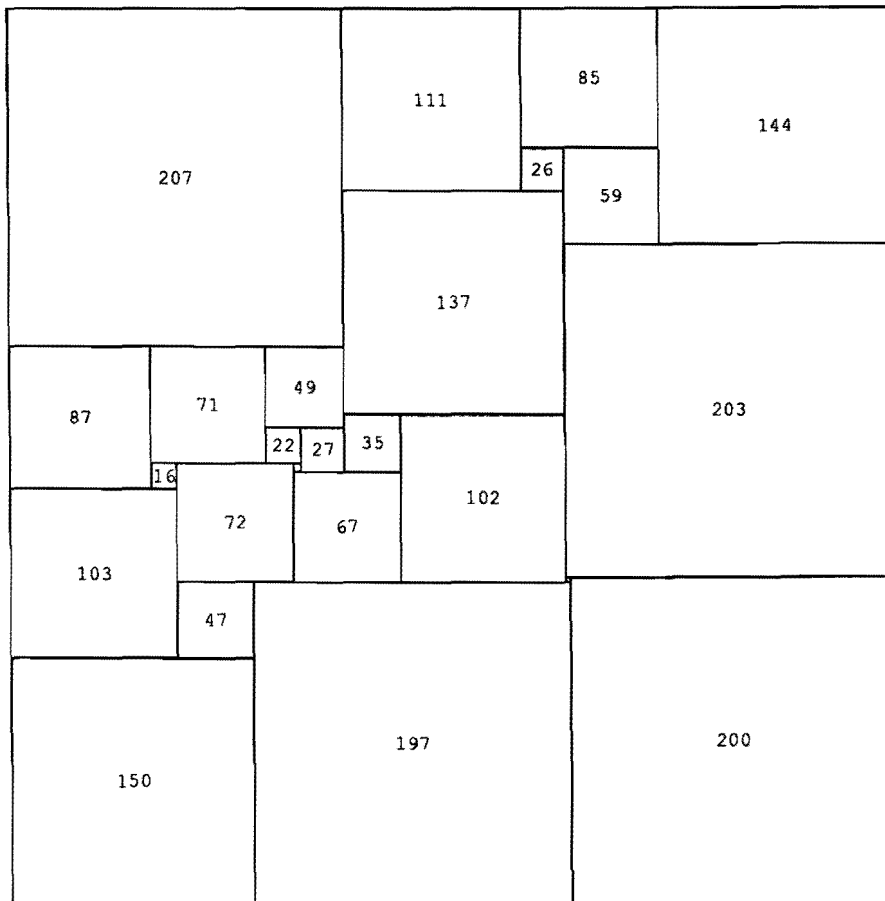
Order: 25

Reduced side: 547

Elements: 3, 5, 16, 22, 26, 27, 35, 47, 49, 59, 67, 71, 72, 85, 87, 102, 103, 111, 137, 144, 150, 197, 200, 203, 207

Code: (207, 111, 85, 144) (26, 59) (137) (203) (87, 71, 49) (35, 102) (22, 27) (16, 72, 5) (67) (103) (3, 200) (47, 197) (150)
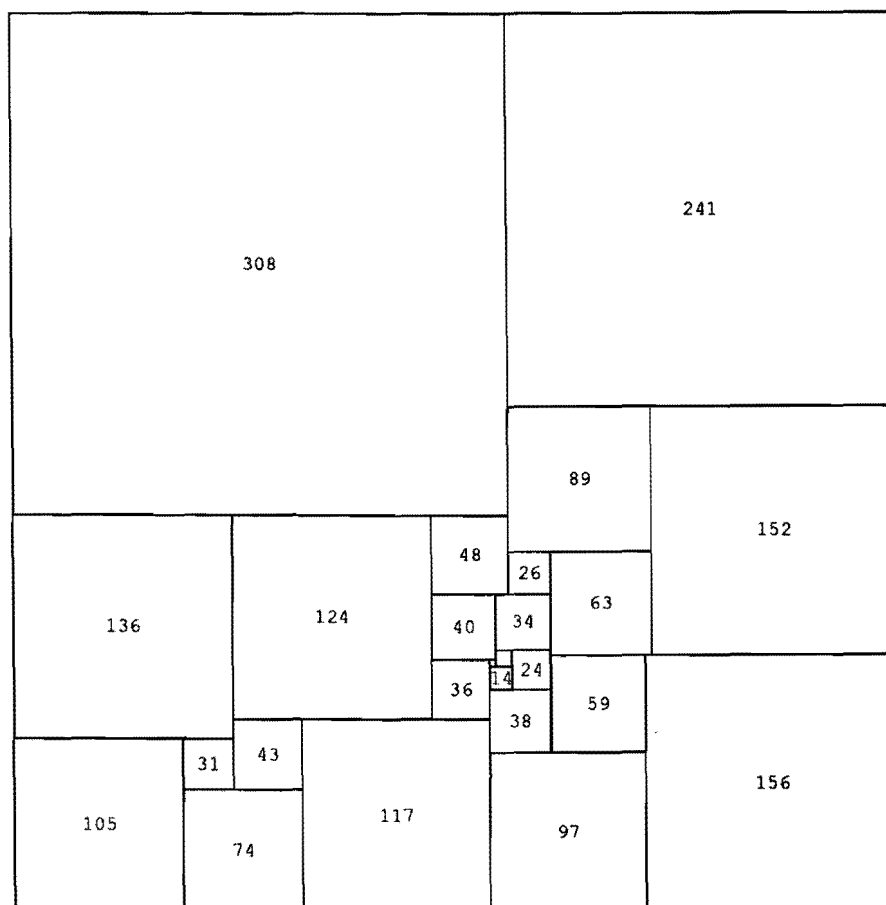
Order: 25

Reduced side: 549

Elements: 4, 10, 14, 24, 26, 31, 34, 36, 38, 40, 43, 48, 59, 63, 74, 89, 97, 105, 117, 124,
                 136, 152, 156, 241, 308

Code: (308, 241) (89, 152) (136, 124, 48) (26, 63) (40, 34) (10, 24) (59, 156) (36, 4)
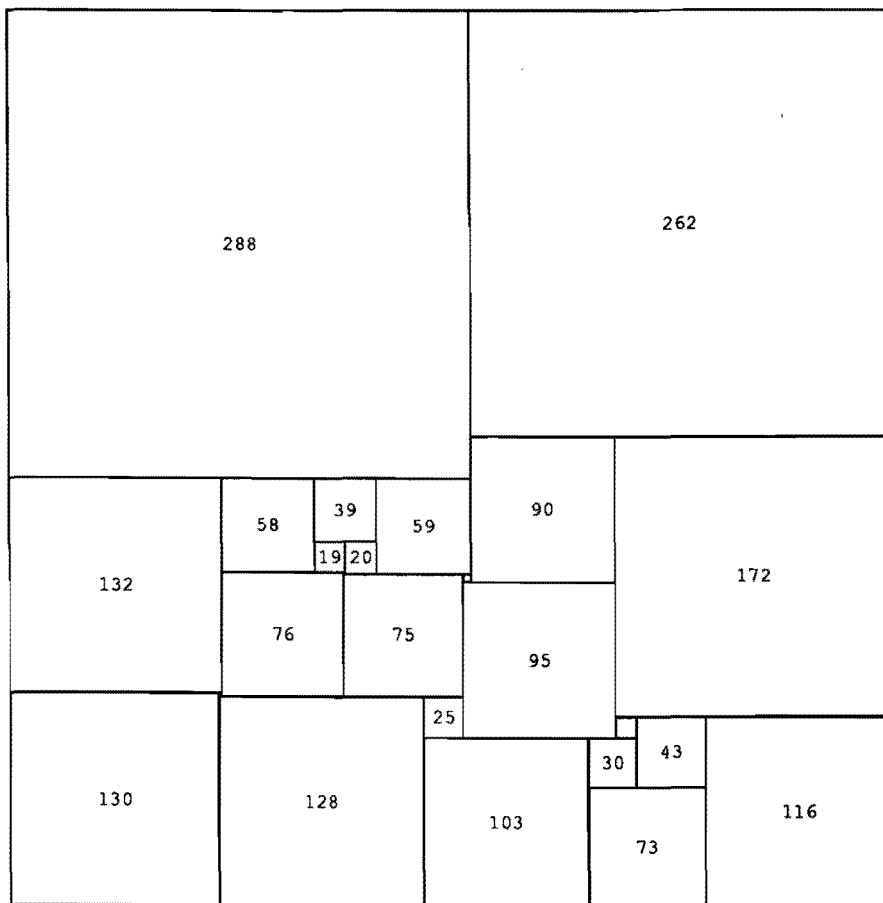   (14) (38) (43, 117) (105, 31) (97) (74)

Order: 25

Reduced side: 550

Elements: 1, 2, 5, 13, 19, 20, 25, 30, 39, 43, 58, 59, 73, 75, 76, 90, 95, 103, 116, 128, 130, 132, 172, 262, 288

Code: (288, 262) (90, 172) (132, 58, 39, 59) (19, 20) (76, 1) (75, 5) (95) (130, 2) (128, 25) (13, 43, 116) (103, 30) (73)
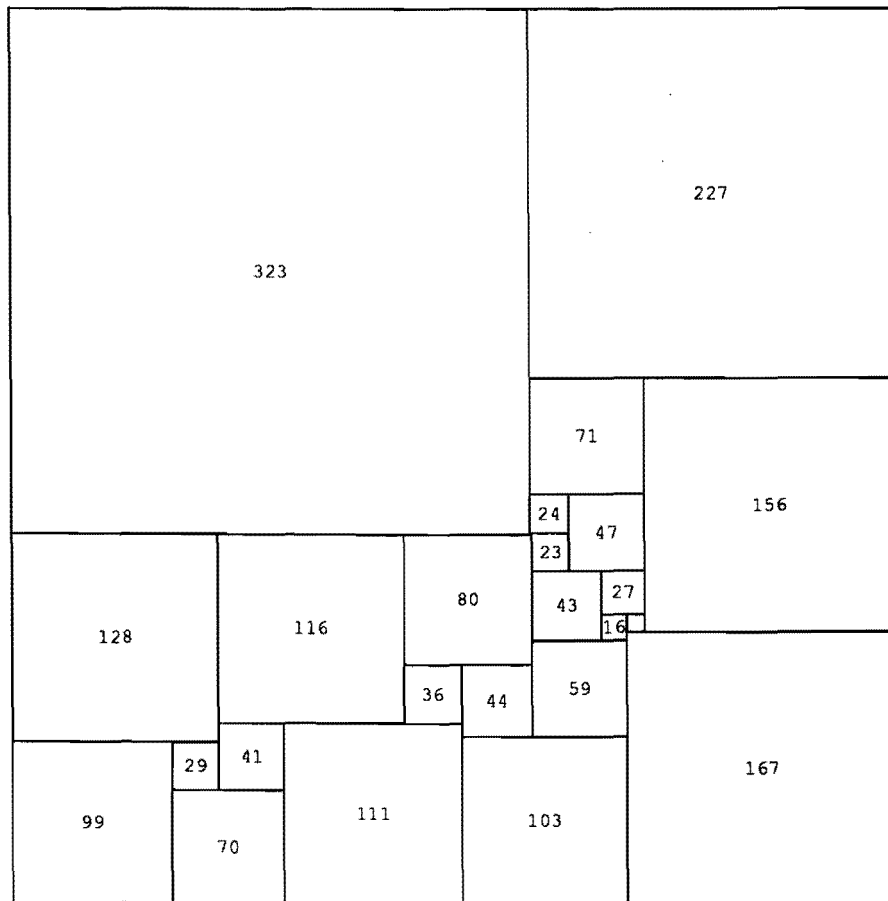
Order: 25

Reduced side: 550

Elements: 1, 11, 16, 23, 24, 27, 29, 36, 41, 43, 44, 47, 59, 70, 71, 80, 99, 103, 111, 116, 128, 156, 167, 227, 323

Code: (323, 227) (71, 156) (24, 47) (1, 23) (128, 116, 80) (43, 27) (16, 11) (167) (59) (36, 44) (41, 111) (103) (99, 29) (70)
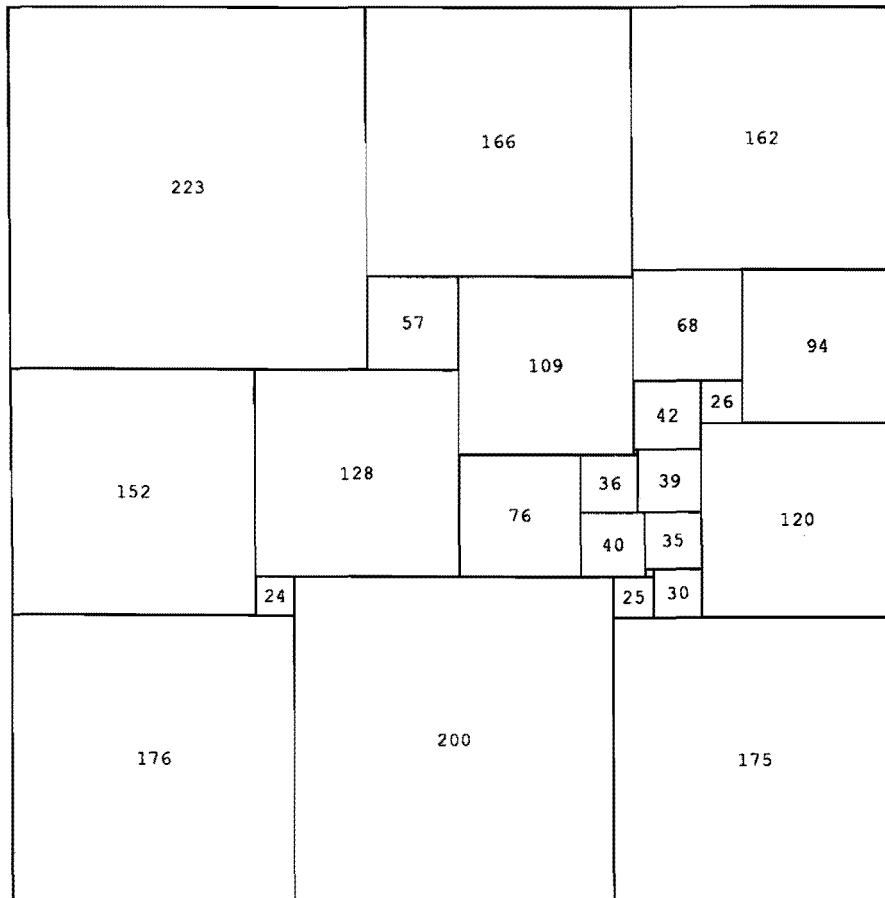
Order: 25

Reduced side: 551

Elements: 3, 5, 24, 25, 26, 30, 35, 36, 39, 40, 42, 57, 68, 76, 94, 109, 120, 128, 152, 162, 166, 175, 176, 200, 223

Code: (223, 166, 162) (68, 94) (57, 109) (152, 128) (42, 26) (120) (3, 39) (76, 36) (40, 35) (5, 30) (24, 200, 25) (176) (175)
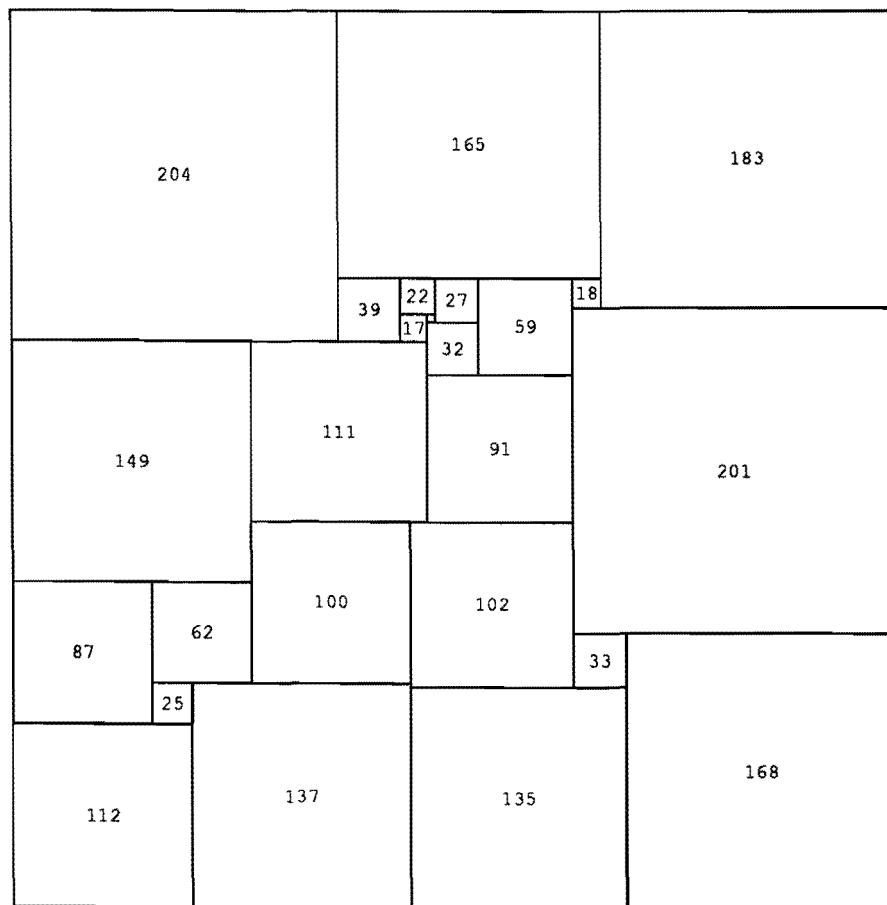
Order: 25

Reduced side: 552

Elements: 5, 17, 18, 22, 25, 27, 32, 33, 39, 59, 62, 87, 91, 100, 102, 111, 112, 135, 137, 149, 165, 168, 183, 201, 204

Code: (204, 165, 183) (39, 22, 27, 59, 18) (201) (17, 5) (32) (149, 111) (91) (100, 102) (87, 62) (33, 168) (25, 137) (135) (112)
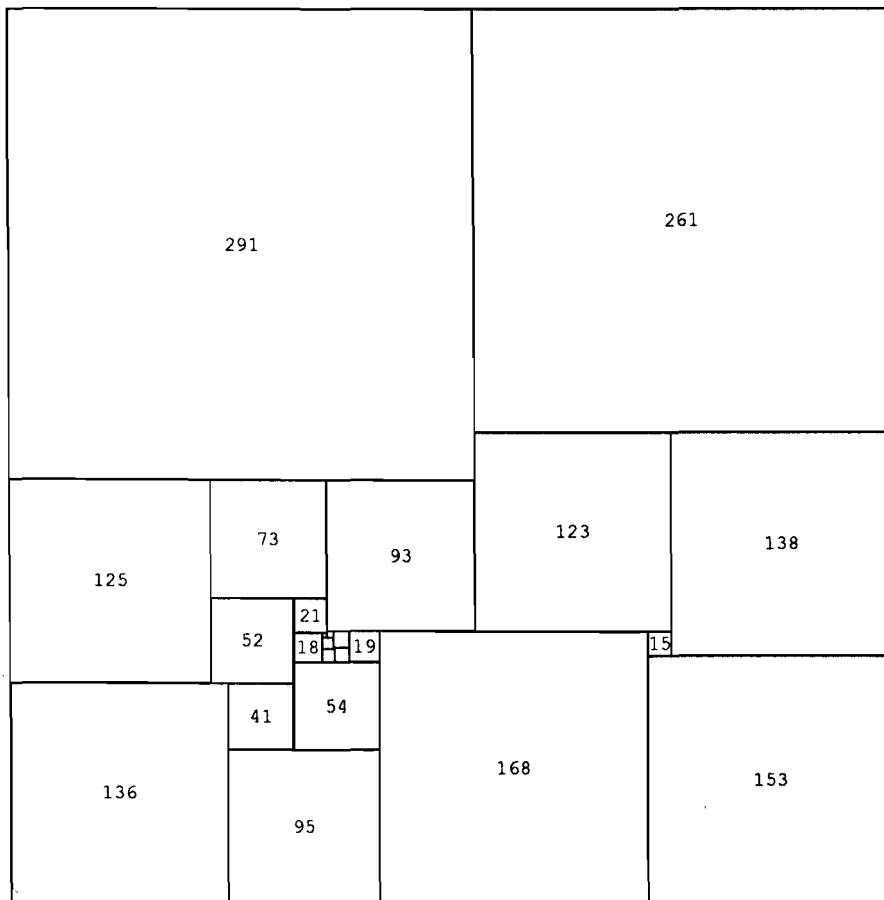
Order: 25

Reduced side: 552

Elements: 1, 3, 4, 7, 8, 9, 10, 15, 18, 19, 21, 41, 52, 54, 73, 93, 95, 123, 125, 136, 138, 153, 168, 261, 291

Code: (291, 261) (123, 138) (125, 73, 93) (52, 21) (4, 10, 19, 168, 15) (18, 3) (7) (1, 9) (8) (153) (54) (136, 41) (95)
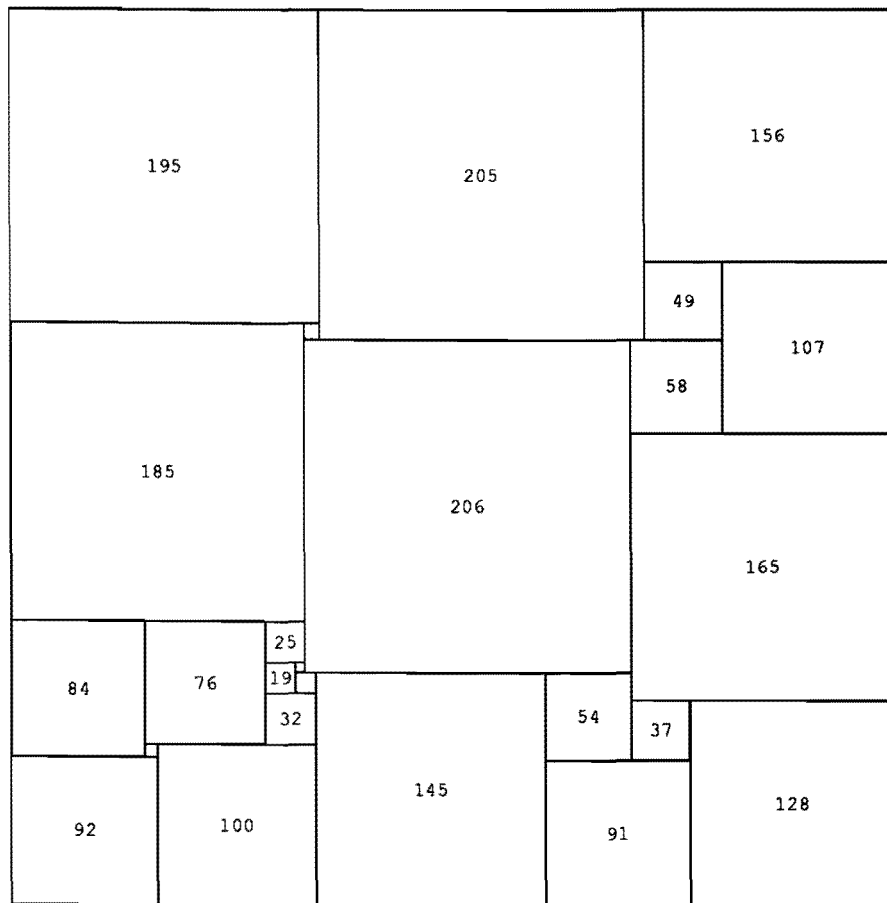
Order: 25

Reduced side: 556

Elements: 6, 8, 10, 13, 19, 25, 32, 37, 49, 54, 58, 76, 84, 91, 92, 100, 107, 128, 145, 156, 165, 185, 195, 205, 206

Code: (195, 205, 156) (49, 107) (185, 10) (206, 58) (165) (84, 76, 25) (19, 6) (13, 145, 54) (32) (37, 128) (8, 100) (92) (91)
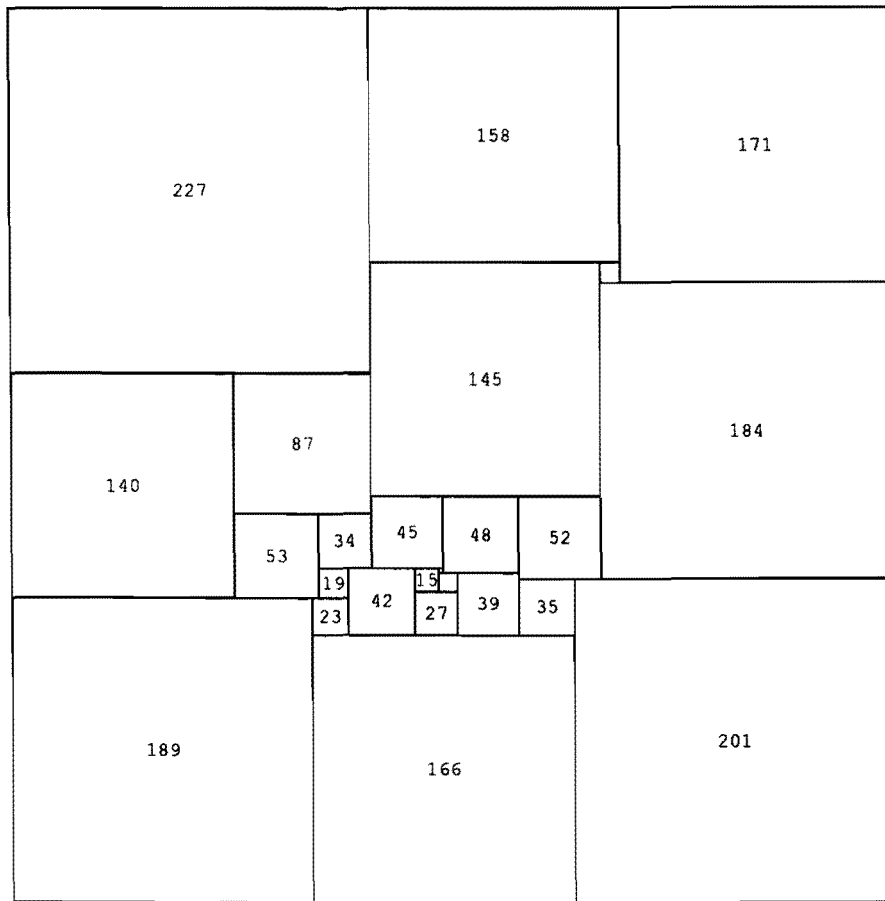
Order: 25

Reduced side: 556

Elements: 3, 12, 13, 15, 19, 23, 27, 34, 35, 39, 42, 45, 48, 52, 53, 87, 140, 145, 158, 166, 171, 184, 189, 201, 227

Code: (227, 158, 171) (145, 13) (184) (140, 87) (45, 48, 52) (53, 34) (19, 42, 15, 3) (12, 39) (35, 201) (27) (189, 23) (166)
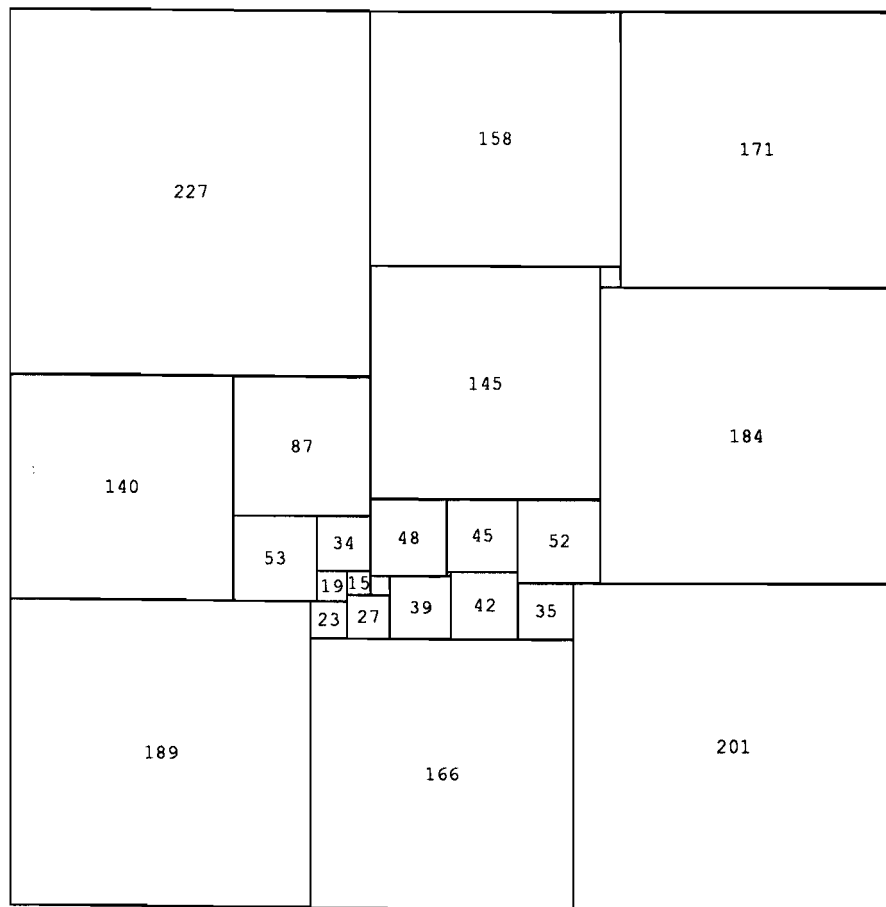
Order: 25

Reduced side: 556

Elements: 3, 12, 13, 15, 19, 23, 27, 34, 35, 39, 42, 45, 48, 52, 53, 87, 140, 145, 158, 166, 171, 184, 189, 201, 227

Code: (227, 158, 171) (145, 13) (184) (140, 87) (48, 45, 52) (53, 34) (19, 15) (3, 42) (12, 39) (35, 201) (27) (189, 23) (166)
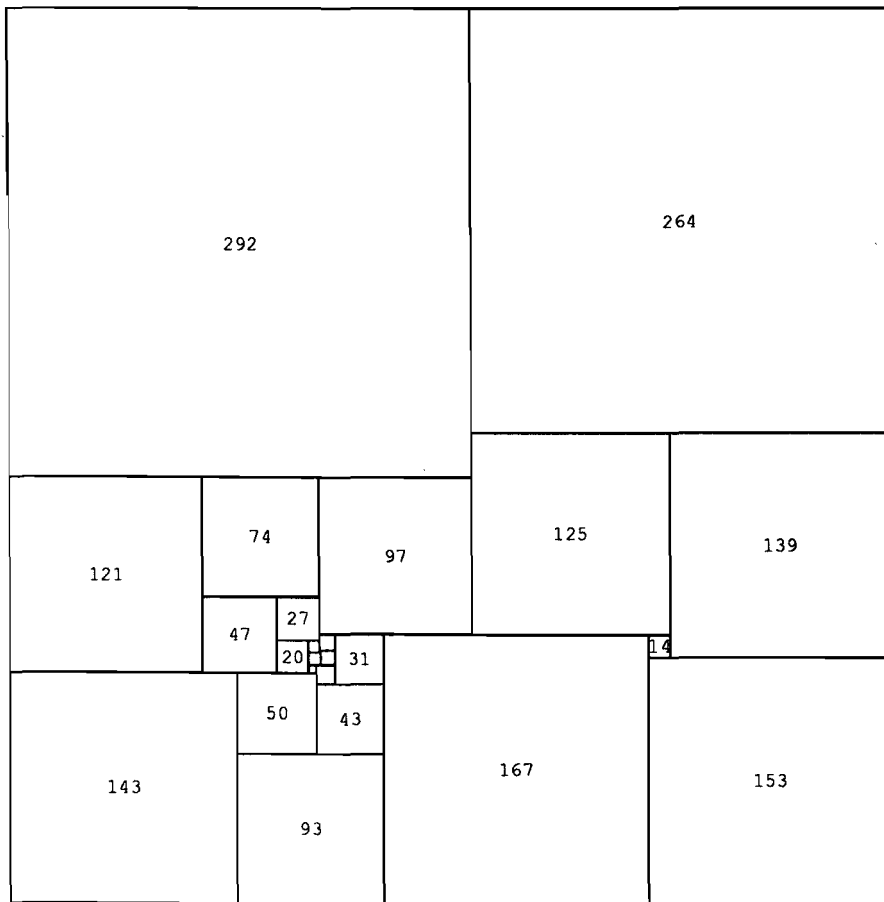
Order: 25

Reduced side: 556

Elements: 1, 5, 7, 8, 9, 10, 12, 14, 20, 27, 31, 43, 47, 50, 74, 93, 97, 121, 125, 139, 143,
                153, 167, 264, 292

Code: (292, 264) (125, 139) (121, 74, 97) (47, 27) (10, 31, 167, 14) (20, 7) (1, 9) (8)
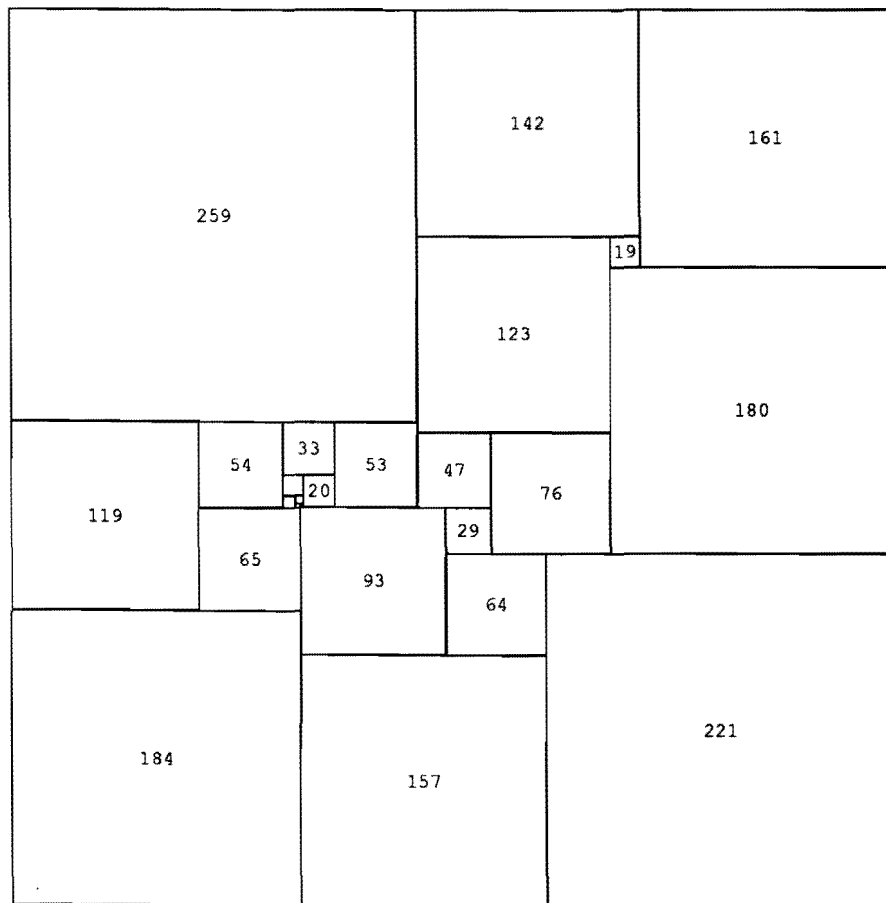   (153) (5, 12) (143, 50) (43) (93)

Order: 25

Reduced side: 562

Elements: 2, 3, 5, 8, 13, 19, 20, 29, 33, 47, 53, 54, 64, 65, 76, 93, 119, 123, 142, 157, 161, 180, 184, 221, 259

Code: (259, 142, 161) (123, 19) (180) (119, 54, 33, 53) (47, 76) (13, 20) (8, 5) (3, 2) (93, 29) (65) (64, 221) (184) (157)
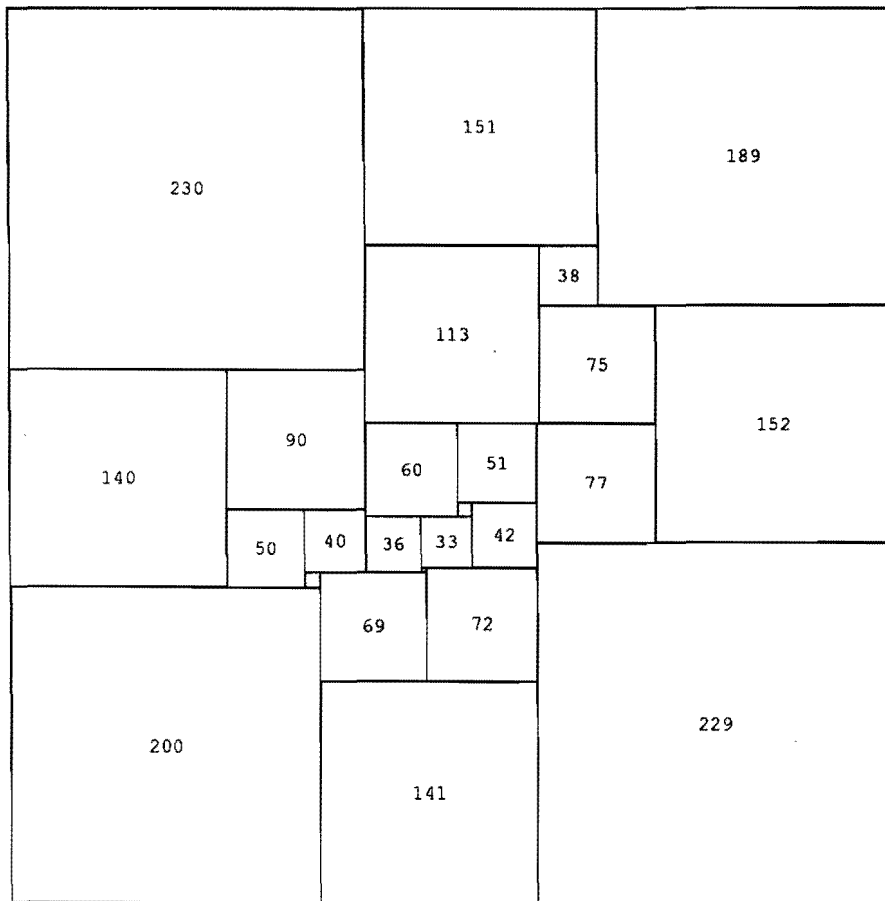

185

Order: 25

Reduced side: 570

Elements: 3, 9, 10, 33, 36, 38, 40, 42, 50, 51, 60, 69, 72, 75, 77, 90, 113, 140, 141, 151, 152, 189, 200, 229, 230

Code: (230, 151, 189) (113, 38) (75, 152) (140, 90) (60, 51, 77) (9, 42) (50, 40) (36, 33) (229) (3, 72) (10, 69) (200) (141)
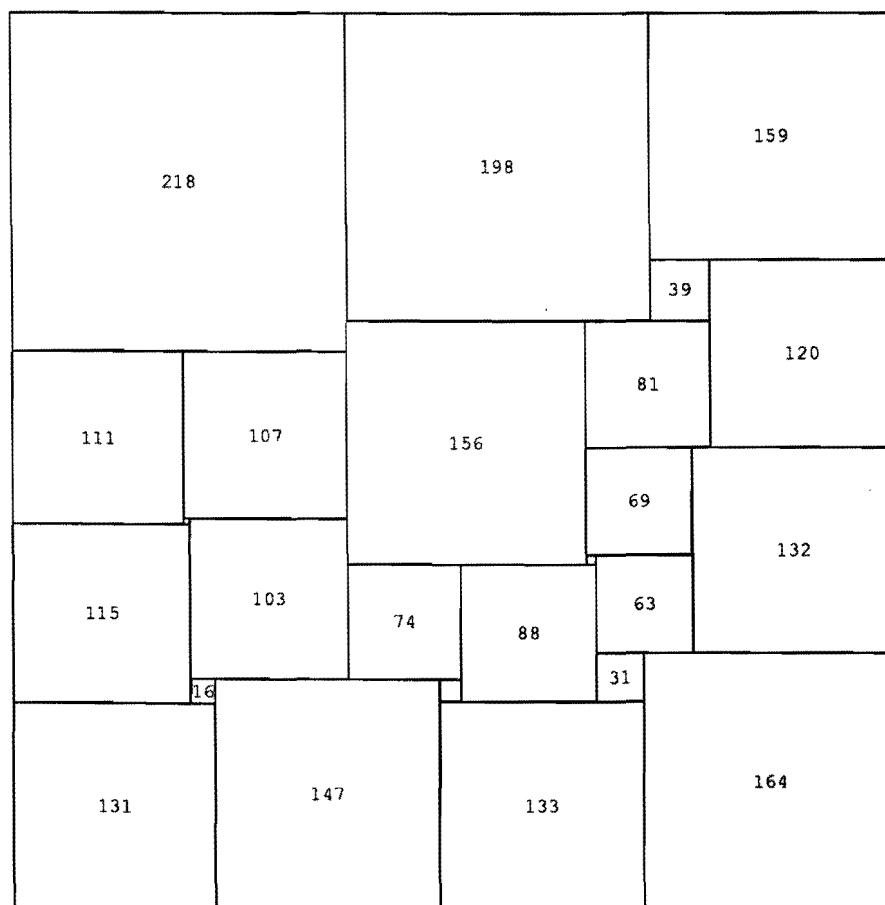
Order: 25

Reduced side: 575

Elements: 4, 6, 14, 16, 31, 39, 63, 69, 74, 81, 88, 103, 107, 111, 115, 120, 131, 132, 133, 147, 156, 159, 164, 198, 218

Code: (218, 198, 159) (39, 120) (156, 81) (111, 107) (69, 132) (4, 103) (115) (6, 63) (74, 88) (31, 164) (16, 147, 14) (133) (131)
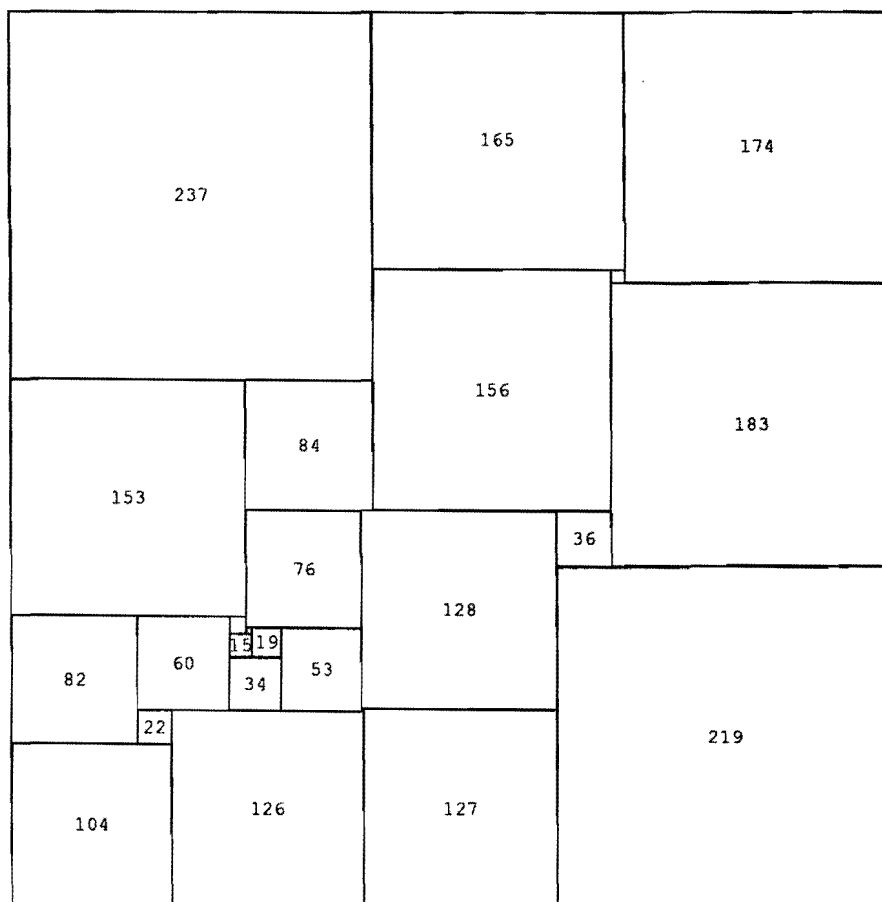
Order: 25

Reduced side: 576

Elements: 1, 4, 9, 11, 15, 19, 22, 34, 36, 53, 60, 76, 82, 84, 104, 126, 127, 128, 153, 156, 165, 174, 183, 219, 237

Code: (237, 165, 174) (156, 9) (183) (153, 84) (76, 128, 36) (219) (82, 60, 11) (4, 19, 53) (15) (34) (1, 127) (22, 126) (104)
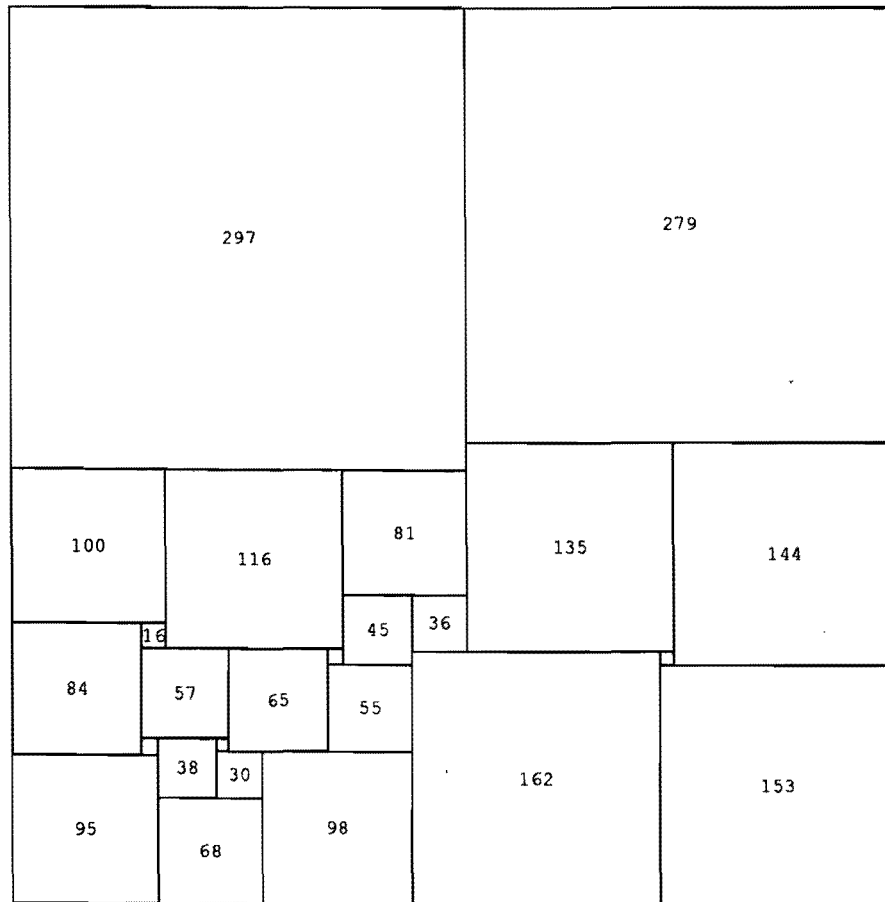
Order: 25

Reduced side: 576

Elements: 8, 9, 10, 11, 16, 30, 36, 38, 45, 55, 57, 65, 68, 81, 84, 95, 98, 100, 116, 135, 144, 153, 162, 279, 297

Code: (297, 279) (135, 144) (100, 116, 81) (45, 36) (84, 16) (57, 65, 10) (162, 9) (55) (153) (11, 38, 8) (30, 98) (95) (68)
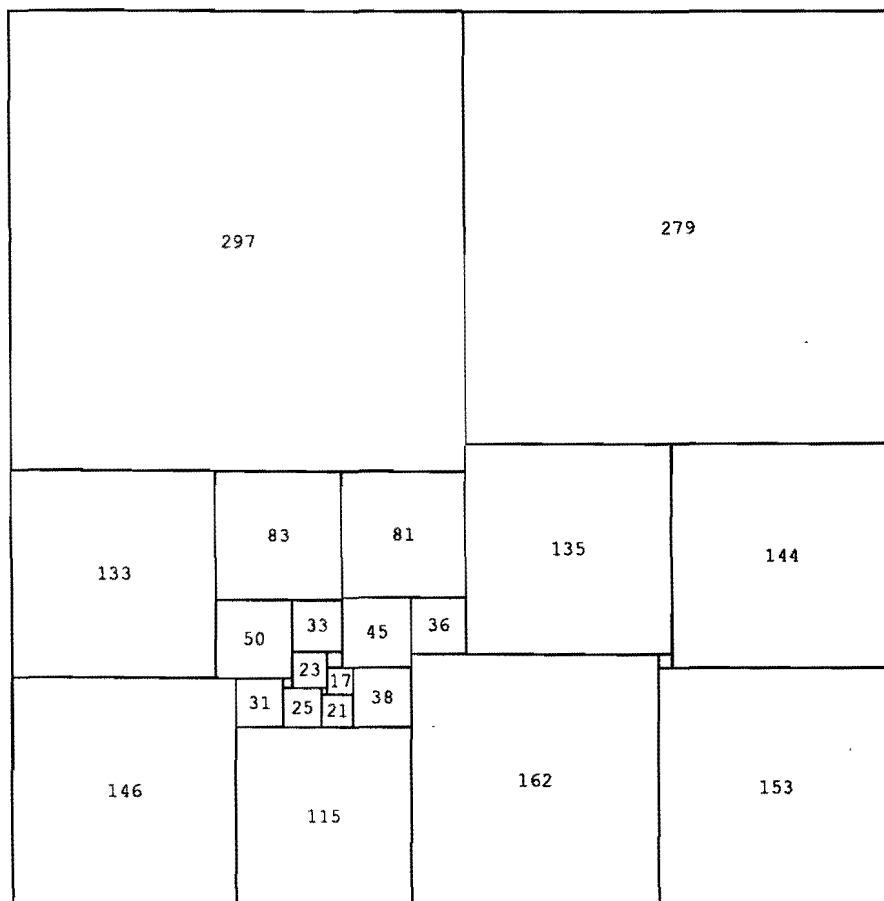
Order: 25

Reduced side: 576

Elements: 4, 6, 9, 10, 17, 21, 23, 25, 31, 33, 36, 38, 45, 50, 81, 83, 115, 133, 135, 144, 146, 153, 162, 279, 297

Code: (297, 279) (135, 144) (133, 83, 81) (45, 36) (50, 33) (23, 10) (162, 9) (17, 38) (153) (146, 31, 6) (25, 4) (21) (115)
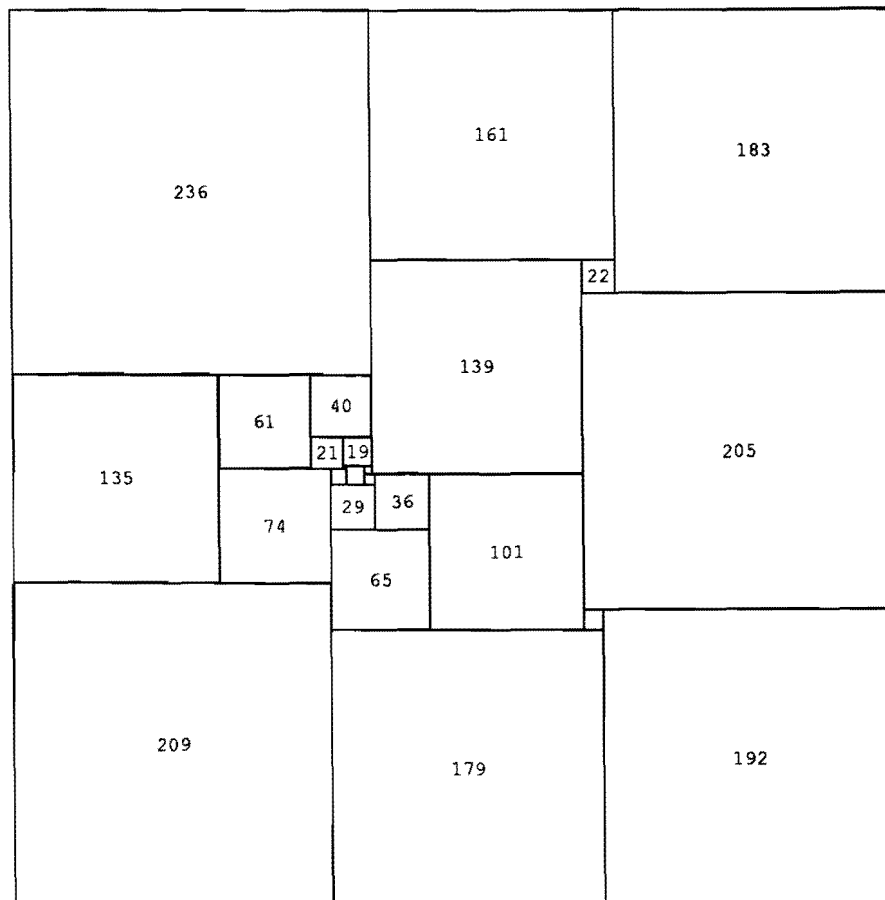
Order: 25

Reduced side: 580

Elements: 2, 5, 7, 10, 12, 13, 19, 21, 22, 29, 36, 40, 61, 65, 74, 101, 135, 139, 161, 179, 183, 192, 205, 209, 236

Code: (236, 161, 183) (139, 22) (205) (135, 61, 40) (21, 19) (2, 12, 5) (74, 10) (7, 36, 101) (29) (65) (209) (13, 192) (179)
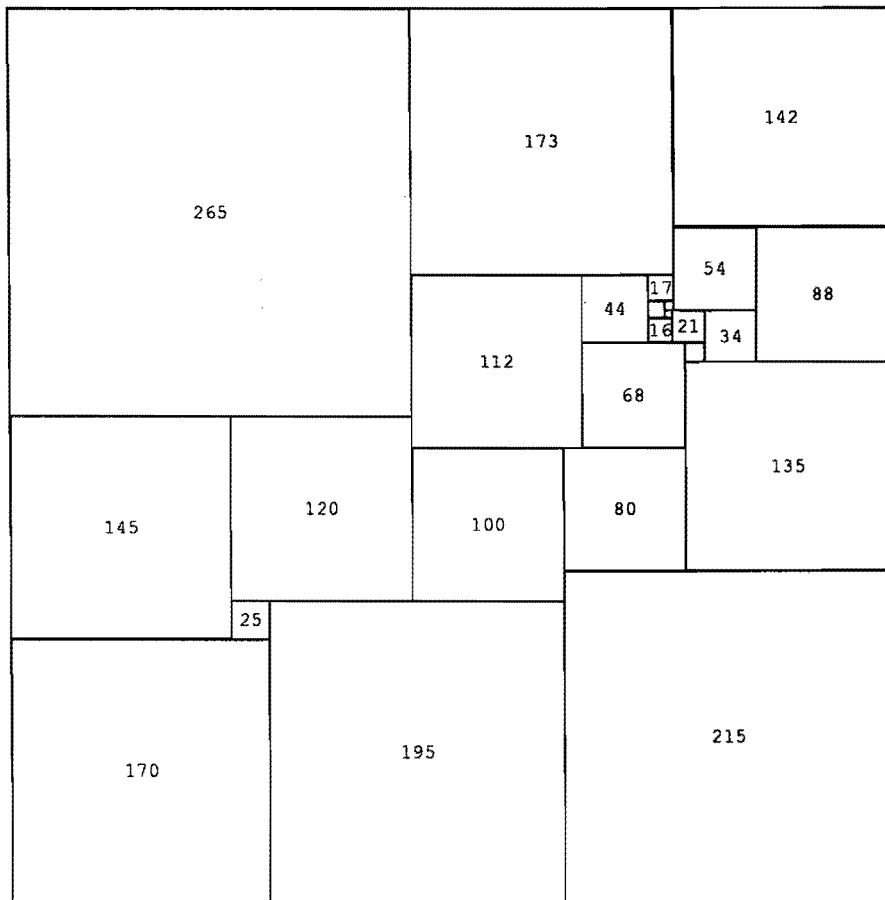
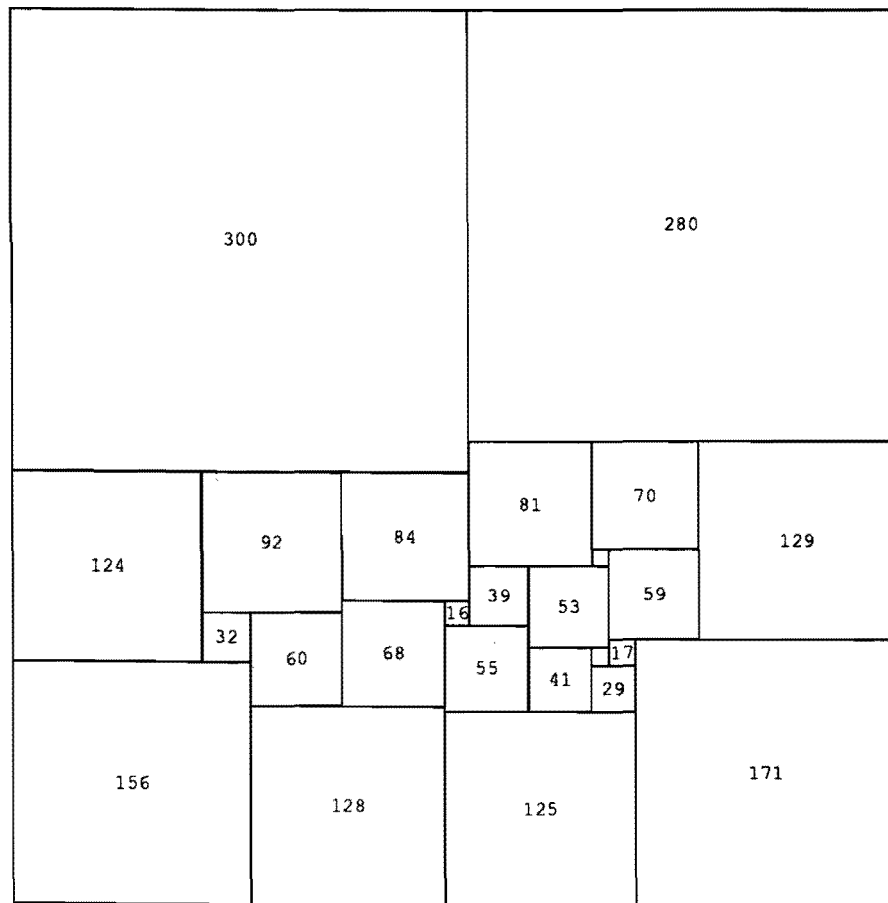| Order:	25
Reduced side:	580
Elements:	5, 6, 11, 13, 16, 17, 21, 25, 34, 44, 54, 68, 80, 88, 100, 112, 120, 135, 142, 145, 170, 173, 195, 215, 265
Code:	(265, 173, 142) (54, 88) (112, 44, 17) (11, 6) (5, 21, 34) (16) (68, 13) (135) (145, 120) (100, 80) (215) (25, 195) (170)

Order: 25

Reduced side: 580

Elements: 11, 12, 16, 17, 29, 32, 39, 41, 53, 55, 59, 60, 68, 70, 81, 84, 92, 124, 125, 128,
                 129, 156, 171, 280, 300

Code: (300, 280) (81, 70, 129) (124, 92, 84) (11, 59) (39, 53) (68, 16) (32, 60) (55)
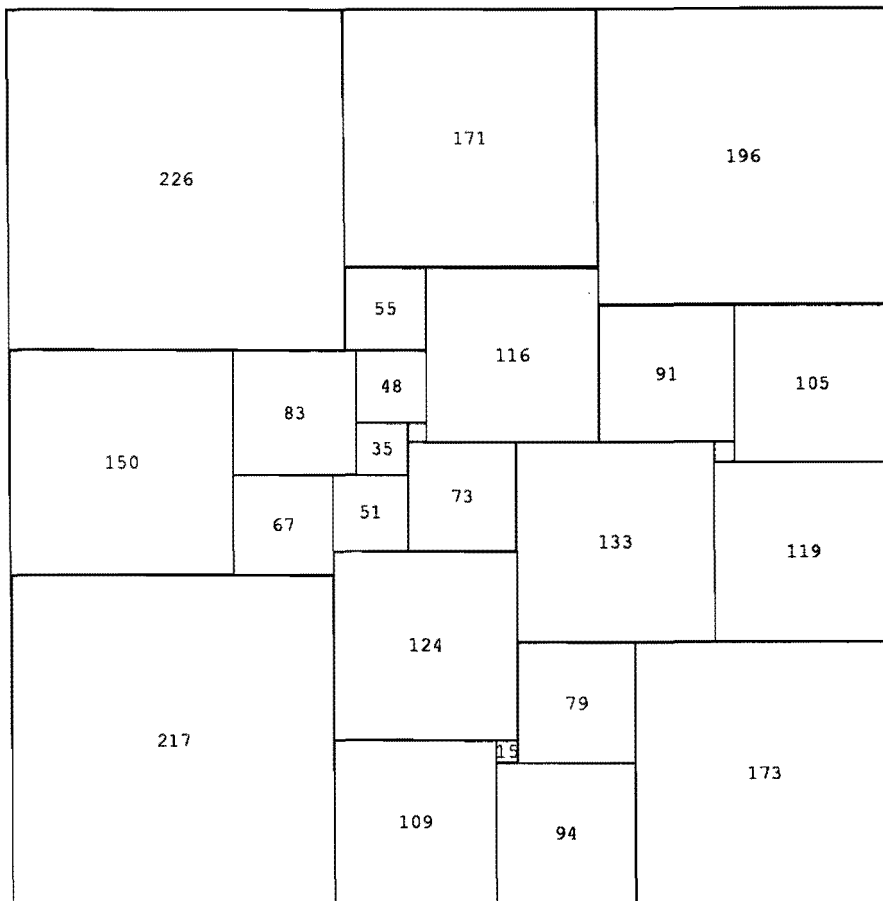   (17, 171) (41, 12) (156) (29) (128) (125)

Order: 25

Reduced side: 593

Elements: 13, 14, 15, 35, 48, 51, 55, 67, 73, 79, 83, 91, 94, 105, 109, 116, 119, 124, 133, 150, 171, 173, 196, 217, 226

Code: (226, 171, 196) (55, 116) (91, 105) (150, 83, 48) (35, 13) (73, 133, 14) (119) (67, 51) (124) (217) (79, 173) (109, 15) (94)
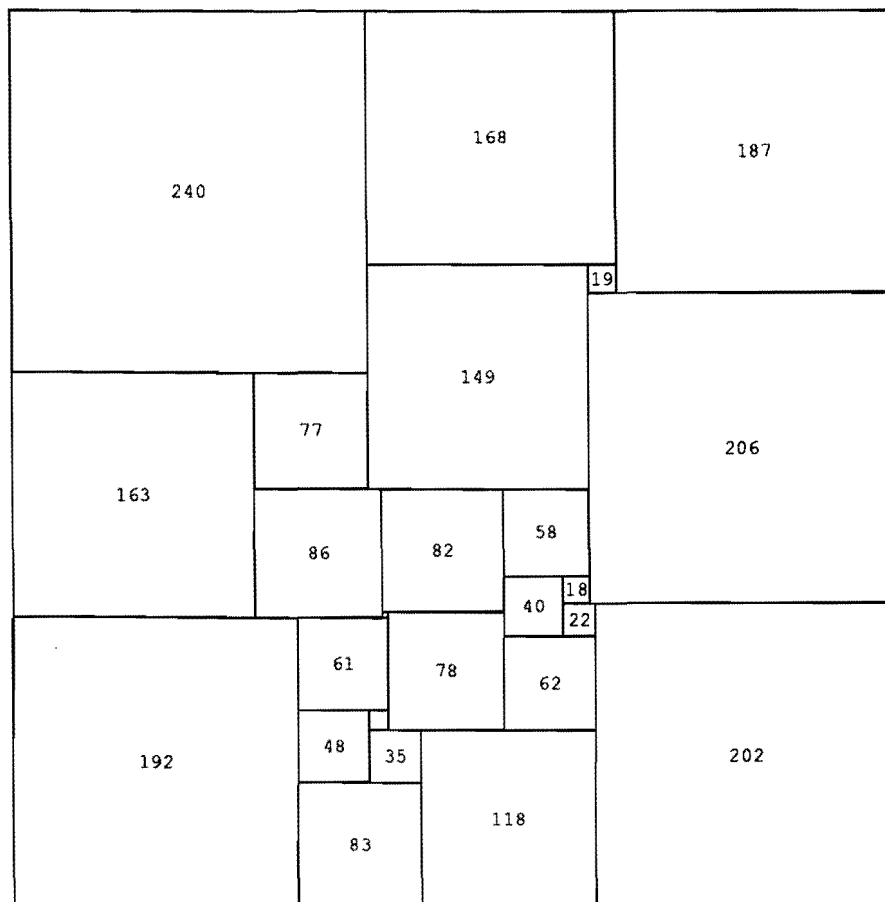
Order: 25

Reduced side: 595

Elements: 4, 13, 18, 19, 22, 35, 40, 48, 58, 61, 62, 77, 78, 82, 83, 86, 118, 149, 163, 168, 187, 192, 202, 206, 240

Code: (240, 168, 187) (149, 19) (206) (163, 77) (86, 82, 58) (40, 18) (22, 202) (4, 78) (192, 61) (62) (48, 13) (35, 118) (83)
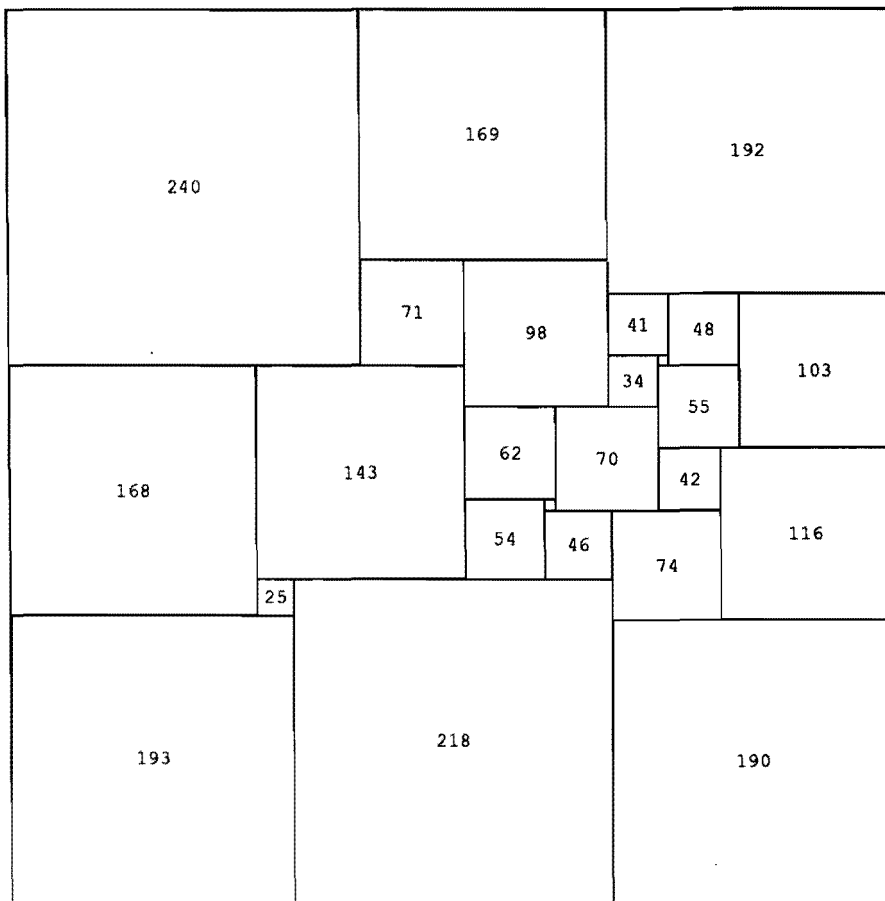
Order: 25

Reduced side: 601

Elements: 7, 8, 25, 34, 41, 42, 46, 48, 54, 55, 62, 70, 71, 74, 98, 103, 116, 143, 168, 169, 190, 192, 193, 218, 240

Code: (240, 169, 192) (71, 98) (41, 48, 103) (34, 7) (168, 143) (55) (62, 70) (42, 116) (54, 8) (46, 74) (25, 218) (193) (190)
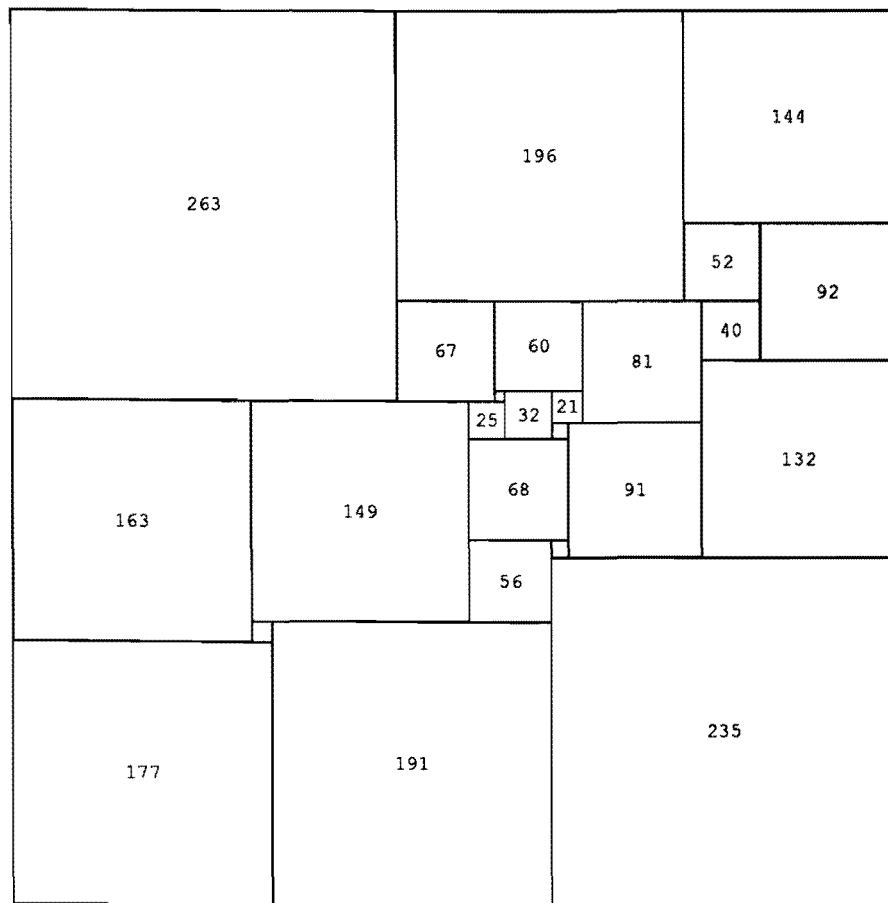
Order: 25

Reduced side: 603

Elements: 7, 11, 12, 14, 21, 25, 32, 40, 52, 56, 60, 67, 68, 81, 91, 92, 132, 144, 149, 163, 177, 191, 196, 235, 263

Code: (263, 196, 144) (52, 92) (67, 60, 81, 40) (132) (7, 32, 21) (163, 149, 25) (11, 91) (68) (56, 12) (235) (14, 191) (177)
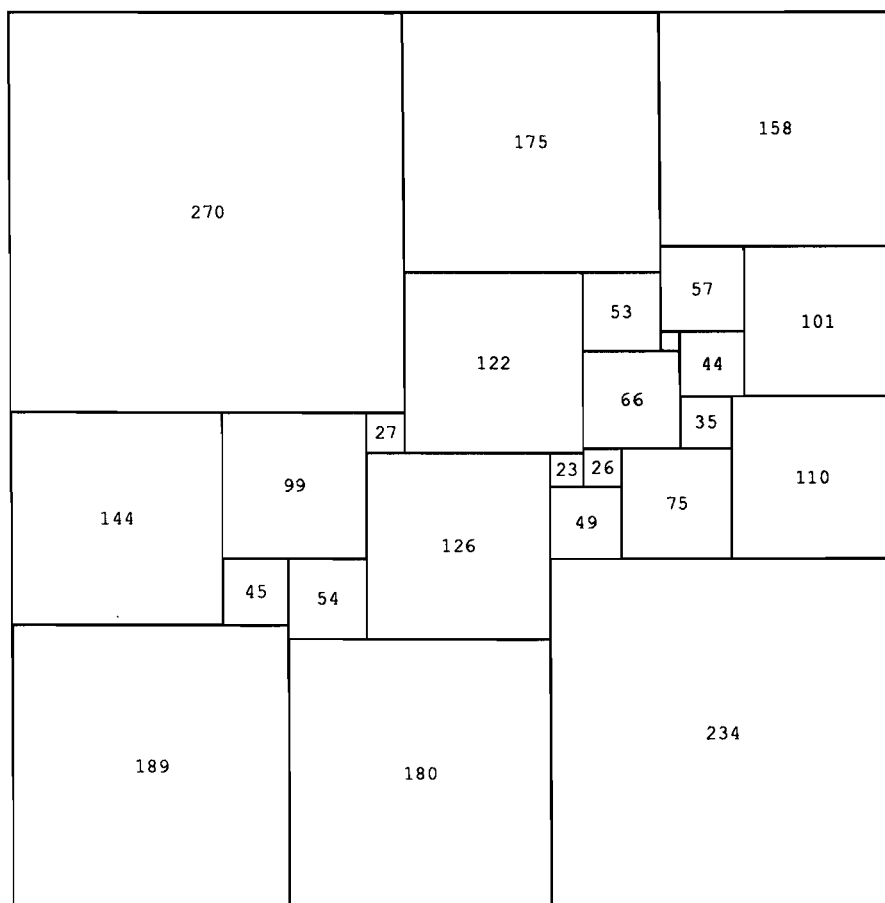
Order: 25

Reduced side: 603

Elements: 13, 23, 26, 27, 35, 44, 45, 49, 53, 54, 57, 66, 75, 99, 101, 110, 122, 126, 144, 158, 175, 180, 189, 234, 270

Code: (270, 175, 158) (57, 101) (122, 53) (13, 44) (66) (35, 110) (144, 99, 27) (26, 75) (126, 23) (49) (45, 54) (234) (189) (180)
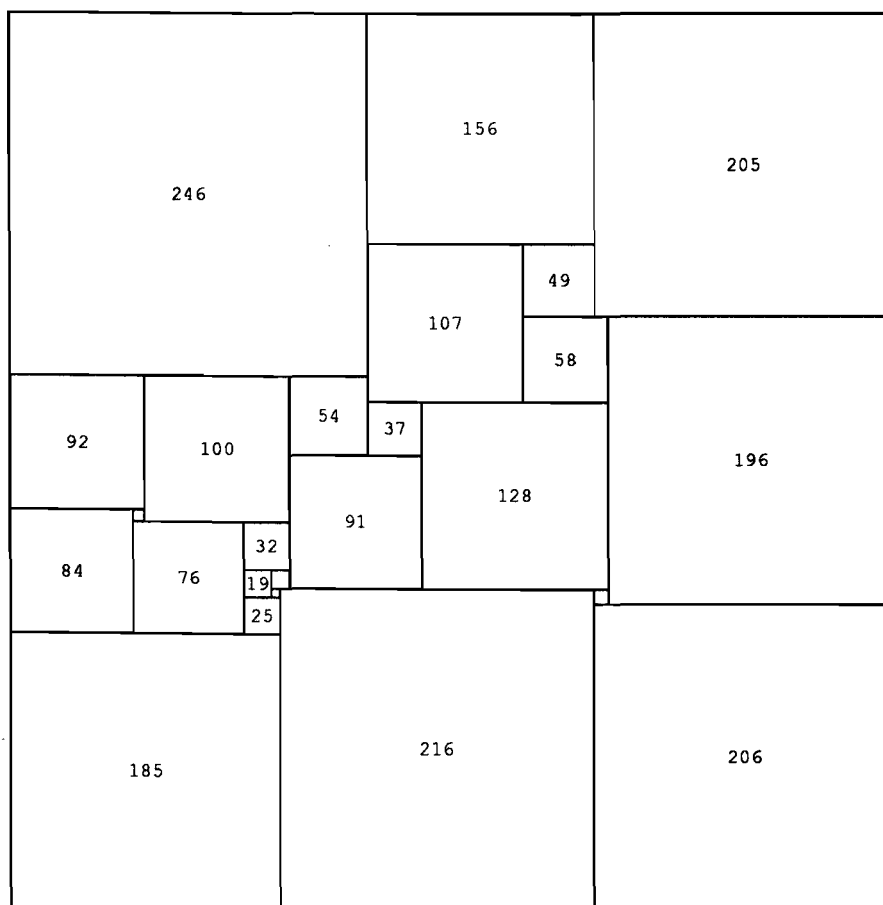
Order: 25

Reduced side: 607

Elements: 6, 8, 10, 13, 19, 25, 32, 37, 49, 54, 58, 76, 84, 91, 92, 100, 107, 128, 156, 185, 196, 205, 206, 216, 246

Code: (246, 156, 205) (107, 49) (58, 196) (92, 100, 54) (37, 128) (91) (84, 8) (76, 32) (19, 13) (6, 216, 10) (25) (206) (185)
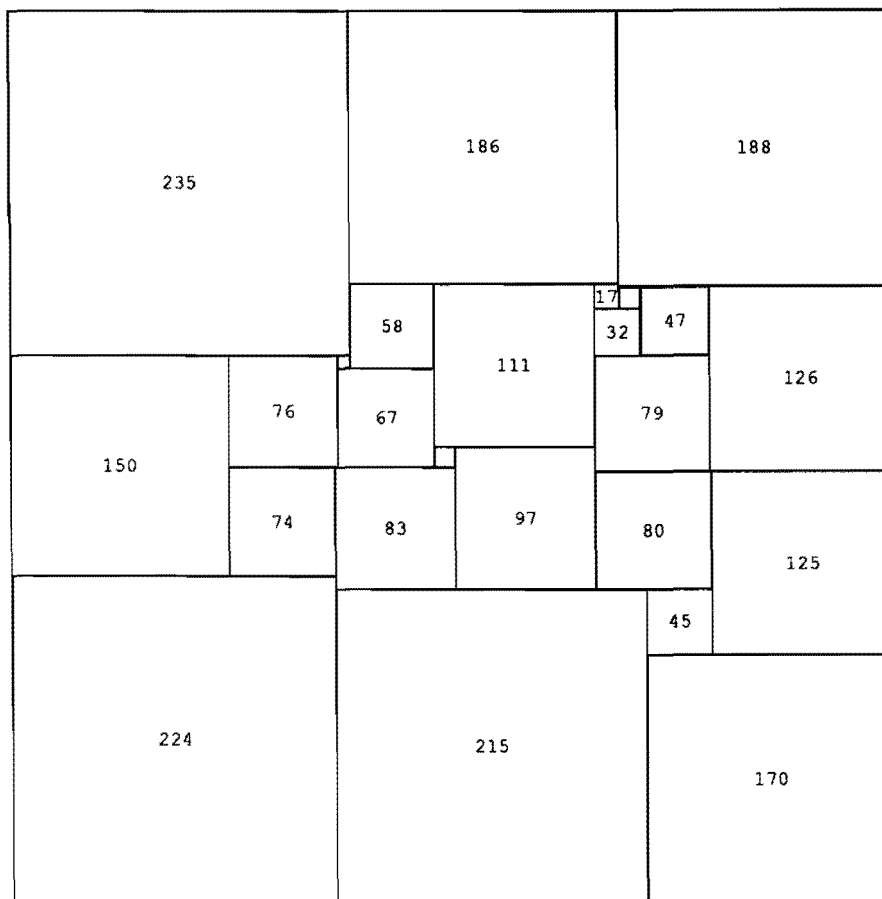
Order: 25

Reduced side: 609

Elements: 9, 14, 15, 17, 32, 45, 47, 58, 67, 74, 76, 79, 80, 83, 97, 111, 125, 126, 150, 170, 186, 188, 215, 224, 235

Code: (235, 186, 188) (58, 111, 17) (15, 47, 126) (32) (150, 76, 9) (79) (67) (14, 97) (74, 83) (80, 125) (224) (215, 45) (170)
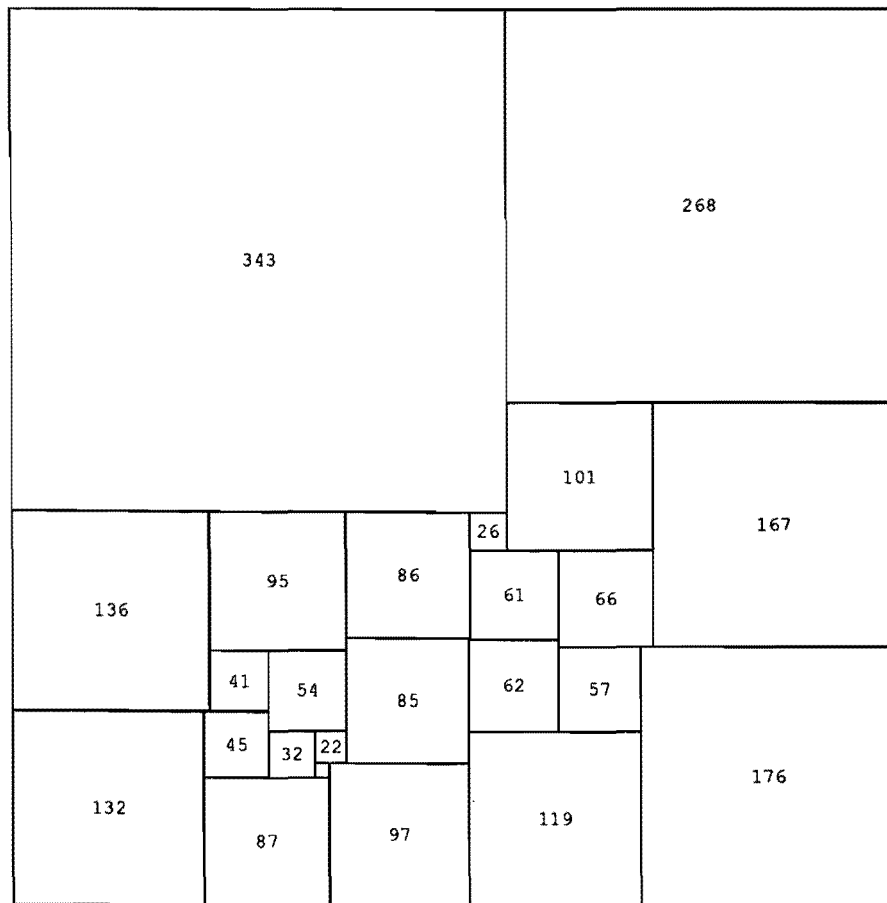
Order: 25

Reduced side: 611

Elements: 1, 10, 22, 26, 32, 41, 45, 54, 57, 61, 62, 66, 85, 86, 87, 95, 97, 101, 119, 132,
                 136, 167, 176, 268, 343

Code: (343, 268) (101, 167) (136, 95, 86, 26) (61, 66) (85, 1) (62) (57, 176) (41, 54)
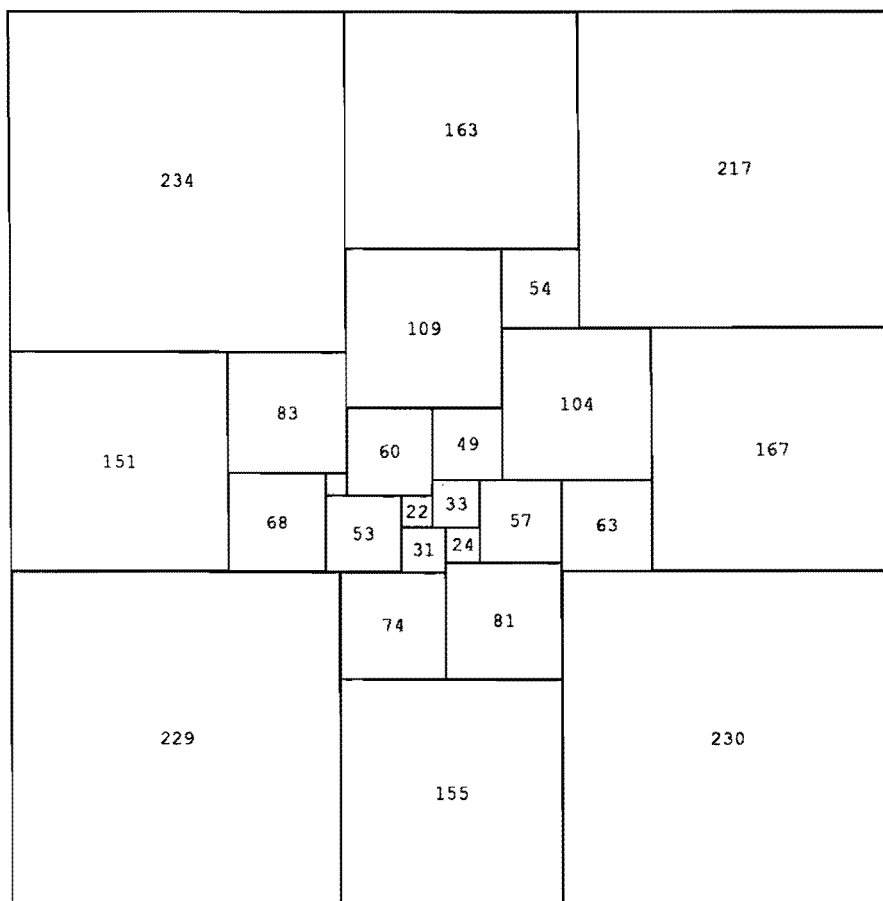   (132, 45) (32, 22) (119) (10, 97) (87)

Order: 25

Reduced side: 614

Elements: 15, 22, 24, 31, 33, 49, 53, 54, 57, 60, 63, 68, 74, 81, 83, 104, 109, 151, 155, 163, 167, 217, 229, 230, 234

Code: (234, 163, 217) (109, 54) (104, 167) (151, 83) (60, 49) (68, 15) (33, 57, 63) (53, 22) (31, 24) (81) (230) (229, 74) (155)
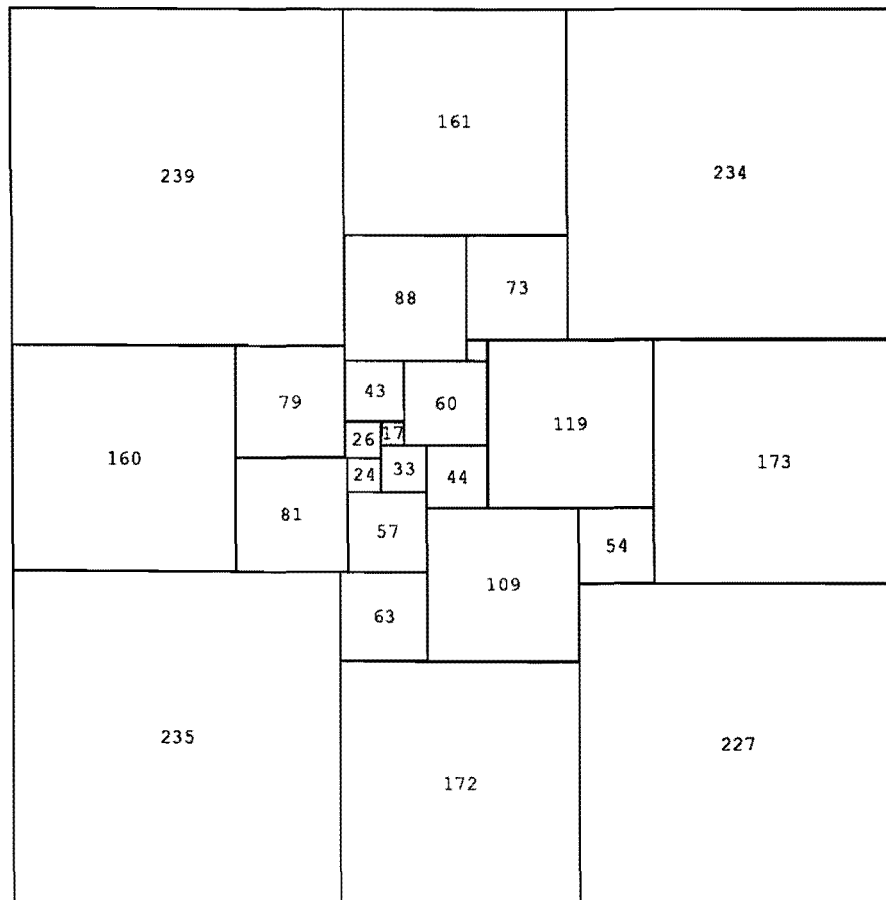
Order: 25

Reduced side: 634

Elements: 15, 17, 24, 26, 33, 43, 44, 54, 57, 60, 63, 73, 79, 81, 88, 109, 119, 160, 161, 172, 173, 227, 234, 235, 239

Code: (239, 161, 234) (88, 73) (15, 119, 173) (160, 79) (43, 60) (26, 17) (33, 44) (81, 24) (57) (109, 54) (235, 63) (227) (172)
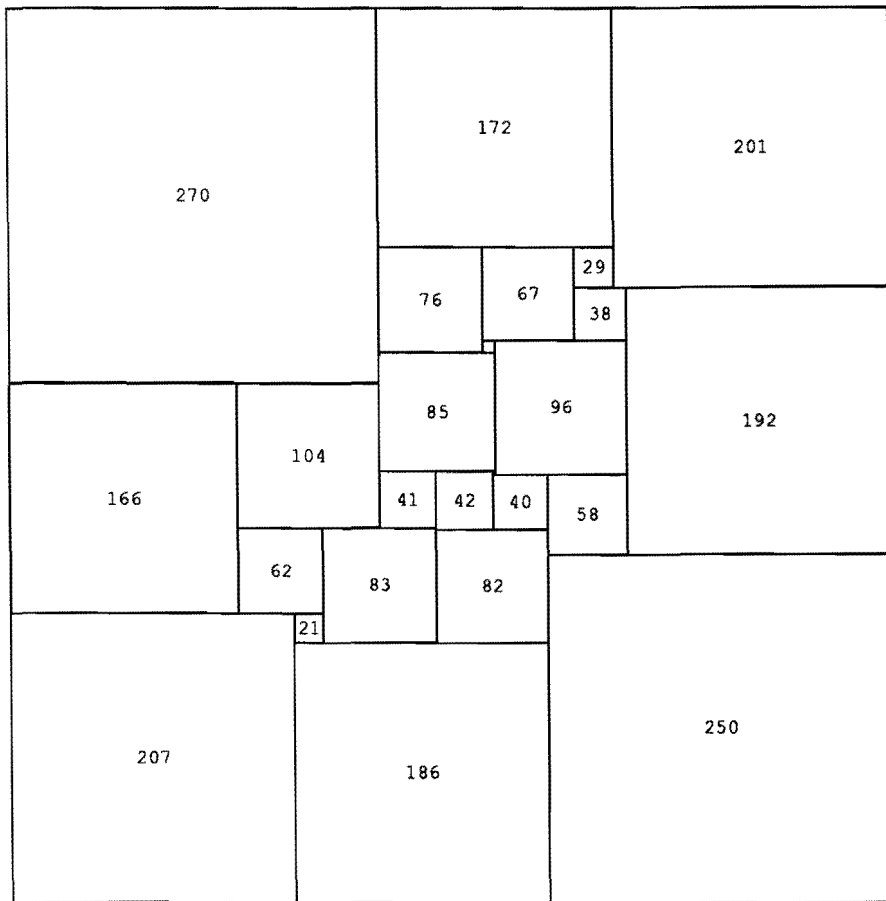
Order: 25

Reduced side: 643

Elements: 2, 9, 21, 29, 38, 40, 41, 42, 58, 62, 67, 76, 82, 83, 85, 96, 104, 166, 172, 186, 192, 201, 207, 250, 270

Code: (270, 172, 201) (76, 67, 29) (38, 192) (9, 96) (85) (166, 104) (41, 42, 2) (40, 58) (62, 83) (82) (250) (207, 21) (186)
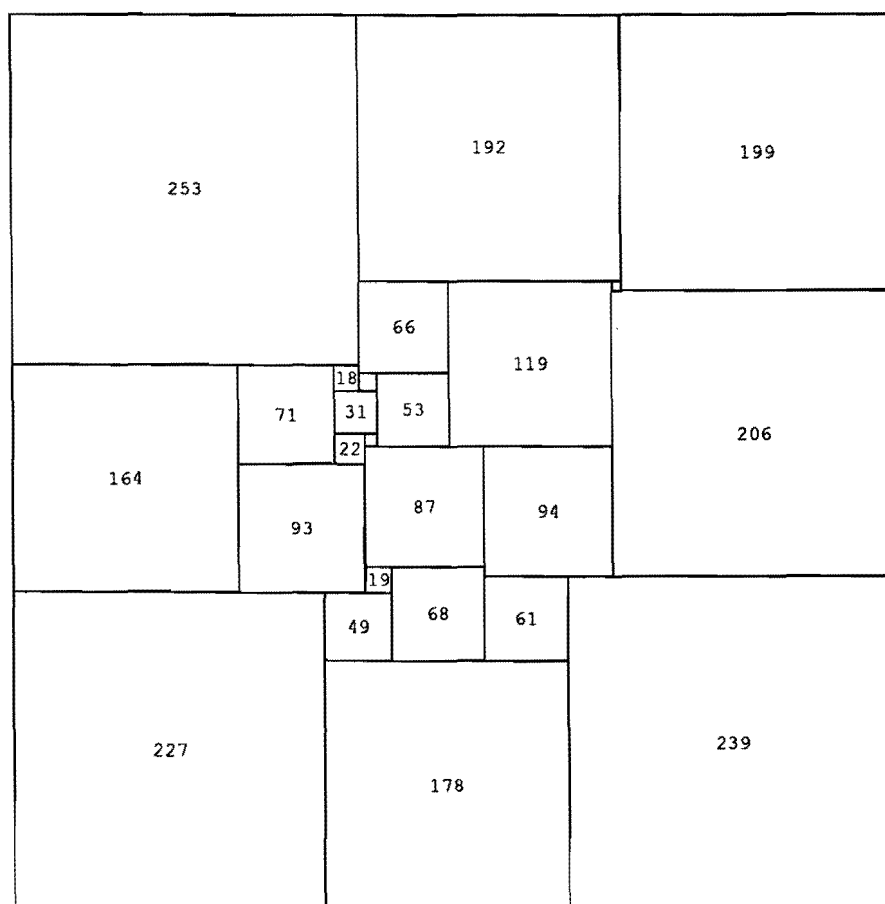
Order: 25

Reduced side: 644

Elements: 7, 9, 13, 18, 19, 22, 31, 49, 53, 61, 66, 68, 71, 87, 93, 94, 119, 164, 178, 192,
                199, 206, 227, 239, 253

Code: (253, 192, 199) (66, 119, 7) (206) (164, 71, 18) (13, 53) (31) (22, 9) (87, 94)
                (93) (19, 68) (61, 239) (227, 49) (178)
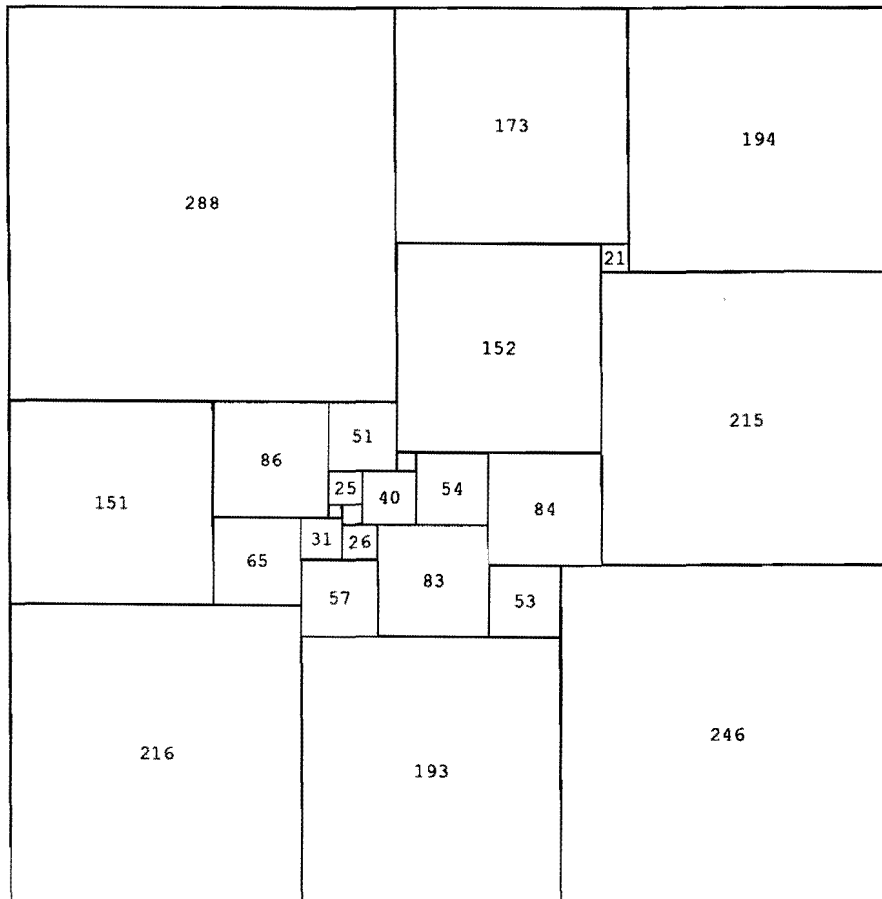
Order: 25

Reduced side: 655

Elements: 10, 14, 15, 21, 25, 26, 31, 40, 51, 53, 54, 57, 65, 83, 84, 86, 151, 152, 173, 193, 194, 215, 216, 246, 288

Code: (288, 173, 194) (152, 21) (215) (151, 86, 51) (14, 54, 84) (25, 40) (10, 15) (65, 31) (26, 83) (57) (53, 246) (216) (193)

Order: 25

Reduced side: 661

Elements: 5, 7, 17, 18, 23, 31, 36, 38, 41, 64, 73, 77, 83, 84, 102, 106, 111, 161, 175, 196, 203, 210, 238, 248, 262

Code: (262, 196, 203) (83, 106, 7) (210) (161, 84, 17) (36, 41, 23) (18, 111) (31, 5) (64) (77, 38) (102) (73, 248) (238) (175)