

[Appendix Illustrated] Kanji Setsuda How to Compose the Models of Simultaneous Magic Squares

#1. Let's make a Simultaneous Suzuki Squares of order 5

Let me introduce you one of my inventions: How to compose the models of Simultaneous Magic Squares of order 5 and 7: Both Self-complementary and Pan-diagonal type.

We already know both the start form and the object model.

In the case of order 5, they are shown as follows:

*** How to Make the Start Square into the Goal Object ***

/Start Form	/Common	/Goal
1 2 3 4 5	1 # # # #	1 23 20 12 9
6 7 8 9 10	# 7 # # #	15 7 4 21 18
11 12 13 14 15	# # 13 # #	24 16 13 10 2
16 17 18 19 20	# # # 19 #	8 5 22 19 11
21 22 23 24 25	# # # # 25	17 14 6 3 25

There are only five numbers common between them, but they make a primary diagonal. Let's start our composing right here when we get it.

This primary diagonal always gives us important 'guiding points' where and how we should place new lines one by one. Watch the following decomposed diagrams carefully, and you will get the process of composing it.

*** Make a Simultaneous 'Suzuki Square' 5x5 Step by Step ***

1/Start	2/Place 1 2 3 4 5
. 25 25 . . .	3 25 . . . 3 25 . . .
. . . 1 | . | . | . | . 1 . .	. . . 1 | . | . | . | . 1 . .
. . . . | 7 | . | . | . . 7 .	. . . . | 7 | 4 | . | . . 7 4
. . . . | . | 13 | . | . . 13	. 2 . . | . | 13 | . | 2 . . 13
19 . . | . | . | . | 19 | . . 5 .	19 . . | . | 5 | . | 19 | . . 5 .
. 25 . . | . | . | . | . | 25 . . .	3 25 . . | . | . | . | 3 | 25 . . .
. . . 1 1 . . .	. . . 1 1 . . .

3/Place 6 7 8 9 10	4/Place 11 12 13 14 15
3 25 . . 6 3 25 . . 6	3 25 . 14 6 3 25 . 14 6
. 9 1 | . | . | . | 9 1 . .	12 9 1 | . | . | 12 | 9 1 . .
. . . . | 7 | 4 | . | . . 7 4	. . 15 | 7 | 4 | . | . 15 7 4
10 2 . . | . | 13 | 10 | 2 . . 13	10 2 . . | . | 13 | 10 | 2 . . 13
19 . 8 | 5 | . | 19 | 8 5 .	19 11 8 | 5 | . | 19 | 11 8 5 .
3 25 . . | 6 | 3 | 25 . . 6	3 25 . 14 | 6 | 3 | 25 . 14 6
. 9 1 . . . 9 1 . . .	12 9 1 . . . 12 9 1 . . .

5/Place 16 17 18 19 20

3	25	17	14	6	3	25	17	14	6
12	9	1	.	20	12	9	1	.	20
.	18	15	7	4	.	18	15	7	4
10	2	.	16	13	10	2	.	16	13
19	11	8	5	.	19	11	8	5	.
3	25	17	14	6	3	25	17	14	6
12	9	1	.	20	12	9	1	.	20

6/Place 21 22 23 24 25

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

#2. Let's make a Simultaneous Magic Squares of order 7

The composing process is just as similar as the one above.

- (1) Start when you get the primary diagonal as Step 1.
- (2) Pick up each row of the Standard Form and place it one by one in such a slanting line as Step 2~8.
- (3) Please take your best care of the crossing point which the primary diagonal and a new slanting line meet on. It always tells you where and how you should place a line.

*** Make a Simultaneous Magic Square 7x7 Step by step ***

1/Start

.	49	.	.	.	.	.	49	.	.
.	.	1	.	.	.	.	.	1	.
.	.	.	9	.	.	.	.	9	.
.	.	.	.	17	.	.	.	.	.
.	.	.	.	.	25	.	.	.	.
.	.	.	.	.	.	33	.	.	.
41	.	.	.	.	.	.	41	.	.
.	49	.	.	.	.	.	.	49	.
.	.	1	.	.	.	.	.	1	.

2/Place 1 2 3 4 5 6 7

.	49	.	.	2	.	.	.	49	.
.	.	1	.	.	.	.	.	1	.
.	.	.	9	.	.	.	7	.	9
.	.	.	.	17	6	.	.	.	.
.	.	.	.	5	.	25	.	.	5
.	.	.	.	.	.	33	.	4	.
41	.	.	.	.	.	.	3	41	.
.	49	.	.	2	.	.	.	49	.
.	.	1	.	.	.	.	.	1	.

3/Place 8 9 10 11 12 13 14

11	49	.	.	2	.	.	11	49	.
.	.	1	.	.	10	.	.	1	.
7	.	.	9	.	.	.	7	.	9
.	8	.	.	17	6	.	.	8	.
.	.	.	5	.	25	14	.	.	5
.	4	.	.	13	.	33	.	4	.
41	.	12	.	.	.	3	41	.	12
11	49	.	.	2	.	.	11	49	.
.	.	1	.	10	.	.	.	1	.

4/Place 15 16 17 18 19 20 21

11	49	.	20	2	.	.	11	49	.	20
.	19	1	.	.	10	.	.	19	1	.
7	.	.	9	.	.	18	7	.	.	9
.	8	.	.	17	6	.	.	8	.	.
.	.	16	5	.	25	14	.	.	16	5
15	4	.	.	13	.	33	15	4	.	.
41	.	12	.	.	21	3	41	.	12	.
11	49	.	20	2	.	.	11	49	.	20
.	19	1	.	10	.	.	19	1	.	.

5/Place 22 23 24 25 26 27 28

```

11 49 . 20 2 . 22 11 49 . 20
. 19| 1|. |28|10|. |. |19| 1 .
---+---+---+---+---+---+
7 . |27| 9|. |. |18| 7|. |. |27| 9
---+---+---+---+---+---+
26 8|. |. |17| 6|. |. |26| 8|. |. |
---+---+---+---+---+---+
. . |16| 5|. |. |25|14|. |. |. |16 5
---+---+---+---+---+---+
15 4|. |. |24|13|. |. |33|15|. |4|. |. |24
---+---+---+---+---+---+
41 23|12|. |. |21| 3|41|23|12|. |
---+---+---+---+---+---+
11 49|. |20| 2|. |. |22|11|49|. |20
---+---+---+---+---+---+
. 19 1 . 28 10 . . 19 1 .

```

6/Place 29 30 31 32 33 34 35

```

11 49 31 20 2 . 22 11 49 31 20
30 19| 1|. |28|10|. |30|19| 1 .
---+---+---+---+---+---+
7 . |27| 9|. |. |29|18| 7|. |. |27| 9
---+---+---+---+---+---+
26 8|. |35|17| 6|. |. |26| 8|. |35
---+---+---+---+---+---+
. 34|16| 5|. |. |25|14|. |. |34|16 5
---+---+---+---+---+---+
15 4|. |24|13|. |. |33|15|. |4|. |. |24
---+---+---+---+---+---+
41 23|12|. |. |32|21| 3|41|23|12|. |
---+---+---+---+---+---+
11 49|31|20| 2|. |. |22|11|49|31 20
---+---+---+---+---+---+
30 19 1 . 28 10 . 30 19 1 .

```

7/Place 36 37 38 39 40 41 42

```

11 49 31 20 2 40 22 11 49 31 20
30 19| 1|39|28|10|. |30|19| 1 39
---+---+---+---+---+---+
7 38|27| 9|. |. |29|18| 7|38|27 9
---+---+---+---+---+---+
26 8|. |35|17| 6|37|26| 8|. |35
---+---+---+---+---+---+
. 34|16| 5|36|25|14|. |34|16 5
---+---+---+---+---+---+
15 4|42|24|13|. |. |33|15|. |4|42 24
---+---+---+---+---+---+
41 23|12|. |. |32|21| 3|41|23|12 .
---+---+---+---+---+---+
11 49|31|20| 2|40|22|11|49|31 20
---+---+---+---+---+---+
30 19 1 39 28 10 . 30 19 1 39

```

8/Place 43 44 45 46 47 48 49

```

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

```

The last stage shows you the goal object we have wanted to compose.

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