

Trimagic square with a pair of trimagic broken diagonals

Walter Trump, 2018-02-20

Square 6a and 6b can be transformed into squares 6a' and 6b' where a broken diagonal is trimagic. The distance of the broken trimagic diagonal from the main diagonal is 2.

There are much more squares with an odd distance number. See 7a with distance 5.

Until now our search for a distance 6 (a semi-pantriagonal square) was in vain.

6a' Descending diagonals are colored

2	63	91	137	12	88	144	83	31	76	59	84
125	51	3	80	128	70	74	45	19	106	37	132
43	135	122	40	90	25	53	36	119	6	104	97
73	99	124	93	44	14	138	35	89	28	18	115
112	98	68	111	24	123	49	27	79	32	136	11
87	5	64	16	60	29	78	141	130	107	103	50
58	140	81	129	85	116	67	4	15	38	42	95
33	47	77	34	121	22	96	118	66	113	9	134
72	46	21	52	101	131	7	110	56	117	127	30
102	10	23	105	55	120	92	109	26	139	41	48
20	94	142	65	17	75	71	100	126	39	108	13
143	82	54	8	133	57	1	62	114	69	86	61

6a' Ascending diagonals are colored

2	63	91	137	12	88	144	83	31	76	59	84
125	51	3	80	128	70	74	45	19	106	37	132
43	135	122	40	90	25	53	36	119	6	104	97
73	99	124	93	44	14	138	35	89	28	18	115
112	98	68	111	24	123	49	27	79	32	136	11
87	5	64	16	60	29	78	141	130	107	103	50
58	140	81	129	85	116	67	4	15	38	42	95
33	47	77	34	121	22	96	118	66	113	9	134
72	46	21	52	101	131	7	110	56	117	127	30
102	10	23	105	55	120	92	109	26	139	41	48
20	94	142	65	17	75	71	100	126	39	108	13
143	82	54	8	133	57	1	62	114	69	86	61

Square 6a' can be transformed into square 6b' by column permutation (3,4,5,6,7,8,9,10,11,12,1,2).

6b' Descending diagonals are colored

91	137	12	88	144	83	31	76	59	84	2	63
3	80	128	70	74	45	19	106	37	132	125	51
122	40	90	25	53	36	119	6	104	97	43	135
124	93	44	14	138	35	89	28	18	115	73	99
68	111	24	123	49	27	79	32	136	11	112	98
64	16	60	29	78	141	130	107	103	50	87	5
81	129	85	116	67	4	15	38	42	95	58	140
77	34	121	22	96	118	66	113	9	134	33	47
21	52	101	131	7	110	56	117	127	30	72	46
23	105	55	120	92	109	26	139	41	48	102	10
142	65	17	75	71	100	126	39	108	13	20	94
54	8	133	57	1	62	114	69	86	61	143	82

6b' Ascending diagonals are colored

91	137	12	88	144	83	31	76	59	84	2	63
3	80	128	70	74	45	19	106	37	132	125	51
122	40	90	25	53	36	119	6	104	97	43	135
124	93	44	14	138	35	89	28	18	115	73	99
68	111	24	123	49	27	79	32	136	11	112	98
64	16	60	29	78	141	130	107	103	50	87	5
81	129	85	116	67	4	15	38	42	95	58	140
77	34	121	22	96	118	66	113	9	134	33	47
21	52	101	131	7	110	56	117	127	30	72	46
23	105	55	120	92	109	26	139	41	48	102	10
142	65	17	75	71	100	126	39	108	13	20	94
54	8	133	57	1	62	114	69	86	61	143	82