

Super Magic

Super Magic

n

S U P E R M A G I C

Calculates and prints a super magic square
with 4 boxes aside and a density n

Input n (38 < n < 100) then key A

$$a + b + c + d = n$$

a	b	c	d
a	b	c	d
a	b	c	d
a	b	c	d

a			
b			
c			
d			
a			
b			
c			
d			

a			
b			
c			
d			
a			
b			
c			
d			

a	b		
c	d		
a	b		
c	d		




```

// ##### MAGIC SQUARE #####
LBL A
CMS
X/T 3 8
GE 1/X
1 0 0 X/T
GE 1/X
STO 90
1 STO 11
( RCL 90 + 1 ) / 4 = INT STO 10
( RCL 90 + 1 ) / 2 . 2 5 = INT STO 07

// ##### CALCULATES VALUES #####
LBL DEG
RCL 90 - RCL 11 - RCL 10 - RCL 07 = STO 06
RCL 07 - 1 = STO 16
RCL 10 + 3 = STO 15
RCL 11 - 1 = STO 14
RCL 06 - 1 = STO 13
RCL 06 - 2 = STO 12
RCL 07 + 2 = STO 09
RCL 10 + 2 = STO 08
RCL 11 - 2 = STO 05
RCL 11 + 1 = STO 04
RCL 06 - 3 = STO 03
RCL 07 + 1 = STO 02
RCL 10 + 1 = STO 01

// ##### TESTING IF DOUBLE #####
1 6 STO 20
LBL WRT
RCL 20 - 1 = STO 21
RC* 20 X/T
LBL ADV
RC* 21
EQ PRT
DSZ 21 ADV
DSZ 20 WRT
OP 59
SBR SQR SBR X2 SBR SQR ADV
CLR
STO 00 STO 99

// ##### SEARCH DATAS #####
LBL GRD
4 STO 95
1 6 STO 98
SBR NOP
LBL LNX
. 8 6 2 STO 55
. 6 4 STO 56
. 8 STO 57
4 STO 94
0 STO 91 STO 00 STO 51 STO 52 STO 53
LBL RAD
RC* 98 / 1 0 =
STO 92 INT INV SUM 92 SBR LOG STO 93 OP 20
SBR YX RCL 92 * 1 0 =
SBR LOG STO 93 OP 20

```



```

SBR YX 1 INV SUM 98
DSZ 94 RAD

// ##### PRINT #####
OP 00
6 2 OP 01
6 2 * 4 INV LOG = SUM 51 RCL 51 OP 02
6 2 * 8 INV LOG = SUM 52 6 2 0 0 SUM 52 RCL 52 OP 03
6 2 * 6 INV LOG = SUM 53 RCL 53 OP 04
OP 05
SBR NOP
DSZ 95 LNX
ADV SBR SQR 4 STO 00
LBL DMS
RC* 00 SUM 91
DSZ 00 DMS
OP 00
3 7 3 2 3 7 OP 02
1 3 2 7 0 0 7 2 0 0 OP 03
OP 05
RCL 91 PRT SBR SQR
CLR
ADV
R/S

// ##### IF DOUBLE #####
LBL PRT
1 SUM 11
GTO DEG
R/S

// ##### CONVERT TO PRINT CODE #####
LBL LOG
+ 1 =
/ 8 =
STO 85 INT STO 86 ( ( RCL 85 - RCL 86 ) * 8 ) + ( RCL 86 * 1 0 ) =
RTN

// ##### CONSTRUCT OP XX #####
LBL YX
RCL 00 - 1 =
/ 3 . 3 =
INT + 5 1 =
STO 87 + 4 =
STO 88
RC* 88 INV INT * 1 0 = ST* 88
INT X/T RCL 93 * X/T INV LOG = SM* 87
RTN

// ##### SQUARE LINE ####
LBL NOP
OP 00
4 7 OP 01
2 0 2 0 4 7 2 0 2 0 OP 02
4 7 2 0 2 0 4 7 2 0 OP 03
2 0 4 7 0 0 0 0 0 0 OP 04
OP 05
RTN

// ##### PRINT TITLE #####

```



```
LBL X2
OP 00
3 0 1 3 OP 01
2 2 2 4 1 5 0 0 3 6 OP 02
3 4 4 1 1 3 3 5 1 7 OP 03
5 * 6 INV LOG = OP 04
OP 05
RTN
```

```
// ##### PRINT LINE #####
```

```
LBL SQR
OP 00
2 0 2 0 2 0 2 0 2 0 OP 01
2 0 2 0 2 0 2 0 2 0 OP 02
2 0 2 0 2 0 2 0 2 0 OP 03
2 0 2 0 2 0 2 0 2 0 OP 04
OP 05
RTN
```

```
// ##### ERROR #####
```

```
LBL 1/X
OP 00
1 7 3 5 3 5 OP 03
3 2 3 5 0 0 7 3 0 0 OP 04
OP 55
R/S
```



L A B E L S		
001	11	A
047	60	DEG
151	96	WRT
163	98	ADV
189	80	GRD
200	23	LNx
231	70	RAD
338	88	DMS
379	99	PRT
387	28	LOG
421	45	YX
467	68	NOP
514	33	X2
559	34	SQR
614	35	1/X

Adr	Branch.		
1/X	006	77	GE
1/X	012	77	GE
ADV	168	97	DSZ
DEG	383	61	GTO
DMS	343	97	DSZ
LNx	328	97	DSZ
LOG	244	71	SBR
LOG	258	71	SBR
NOP	197	71	SBR
NOP	326	71	SBR
PRT	166	67	EQ
RAD	270	97	DSZ
SQR	176	71	SBR
SQR	180	71	SBR
SQR	332	71	SBR
SQR	373	71	SBR
WRT	171	97	DSZ
X2	178	71	SBR
YX	250	71	SBR
YX	264	71	SBR

Reg.	Instr.		
00	184	42	STO
	222	42	STO
	335	42	STO
	339	73	RC*
	422	43	RCL
01	144	42	STO
02	137	42	STO
03	130	42	STO
04	123	42	STO
05	116	42	STO
06	060	42	STO
	083	43	RCL
	090	43	RCL
	125	43	RCL
07	044	42	STO
	057	43	RCL
	062	43	RCL
	097	43	RCL
	132	43	RCL
08	109	42	STO
09	102	42	STO
10	029	42	STO
	054	43	RCL
	069	43	RCL
	104	43	RCL
	139	43	RCL
11	017	42	STO
	051	43	RCL
	076	43	RCL
	111	43	RCL
	118	43	RCL
	381	44	SUM
12	095	42	STO
13	088	42	STO
14	081	42	STO
15	074	42	STO



16	067 42 STO
20	148 42 STO 152 43 RCL 159 73 RC*
21	157 42 STO 164 73 RC*
51	224 42 STO 286 44 SUM 288 43 RCL
52	226 42 STO 299 44 SUM 305 44 SUM 307 43 RCL
53	228 42 STO 318 44 SUM 320 43 RCL
55	205 42 STO
56	210 42 STO
57	214 42 STO
85	394 42 STO 401 43 RCL
86	397 42 STO 404 43 RCL 412 43 RCL
87	437 42 STO 463 74 SM*
88	442 42 STO 444 73 RC* 452 72 ST*
90	014 42 STO 020 43 RCL 032 43 RCL 048 43 RCL
91	220 42 STO 341 44 SUM 370 43 RCL
92	238 42 STO 242 44 SUM 252 43 RCL



93	246	42	STO
	260	42	STO
	456	43	RCL
94	217	42	STO
95	191	42	STO
98	195	42	STO
	232	73	RC*
	268	44	SUM
99	186	42	STO

