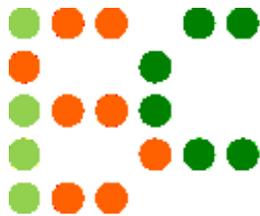


Instructions booklet
for
Sudoku Mahabharat 2020 Finals
&
Indian Sudoku Championship 2020



13th December 2020
(This event will be held online)

Online Finals: Starts at 9:00 AM	Round 1 – The Archetypes	65 min: 600 points
Total Solving Time: 345 minutes	Round 2 – SM Reflections	95 min: 900 points
Total Points: 3200 + Bonus + Base points	Round 3 – The Voguish	70 min: 650 points
	Round 4 – Mean Minis	45 min: 400 points
	Round 5 – Linked Pairs	70 min: 650 points

About this document:

These are the instructions for the 2020 Sudoku Mahabharat + Indian Sudoku Championship Finals, organised by Logic Masters India. Any questions related to these instructions should be raised and discussed at

<http://logicmastersindia.com/forum/forums/thread-view.asp?tid=2720>

Schedule on 13th December 2020

09:00 to 10:05 Round 1 – The Archetypes
10:20 to 11:55 Round 2 – SM Reflections
12:10 to 13:20 Round 3 – The Voguish
13:20 to 14:45 Lunch break
14:45 to 15:30 Round 4 – Mean Minis
15:45 to 16:55 Round 5 – Linked Pairs
17:15 to 17:30 Announcement of Results

“Official” Round timings

Indian participants must start the test during the below time window to be considered for official rankings.

Round 1 – The Archetypes – Must start between 09:00 to 09:15

Round 2 – SM Reflections – Must start between 10:20 to 10:35

Round 3 – The Voguish – Must start between 12:10 to 12:25

Round 4 – Mean Minis– Must start between 14:45 to 15:00

Round 5 – Linked Pairs – Must start between 15:45 to 16:00

If a participant starts a round outside the above window, their results for those rounds shall be considered “unofficial”.

Authors & Test-Solvers:

LMI thanks the authors and test solvers for their contributions to ISC 2020:

- Akash Douhani (India) - Author + Test-Solving
- Cedomir Milanovic (Serbia) – Author
- Jan Novotny (Czech Republic) - Author
- Nikola Zivanovic (Serbia) – Author + Test-Solving
- Priyam Bhushan (India) – Author + Test-Solving
- R Kumaresan (India) - Author + Test-Solving
- Rakesh Rai (India) - Author + Test-Solving
- Tawan Sunathvanichkul (Thailand) - Author

- Amit Sowani (India) – Test-Solving
- Bram De Laat (The Netherlands) – Test-Solving
- Branko Ceranic (Serbia) – Test-Solving
- Deyan Razsadov (Bulgaria) – Test-Solving
- Ken Endo (Japan) – Test-Solving
- Tiit Vunk (Estonia) – Test-Solving
- Wang Weifan (China) – Test-Solving
- Yanzhe Qiu (China) – Test-Solving
- Yuhei Kusui (Japan) – Test-Solving

General Structure of the finals

There will be 5 rounds in the finals, of varying lengths and of varying points. Scores from each round, along with bonus if any, will be added up to the base points to determine the final score of the player. This score will be used for ranking in Indian Sudoku Championship 2020.

There will be a separate ranking after these rounds, based on SM eligibility, to determine the Sudoku Mahabharat winner.

How to participate?

- Download the password protected Sudoku booklet for each round. The Sudoku booklets contain the actual Sudokus to be solved. It is password protected.
- You must participate in the contest during the “official” round timings on 13th December to be included in the official rankings.
- For each round, Click on “Start” button. At this time, password for pdf will be shown and timer will start.
- You can print the pdf and solve on paper. There shall be no online solving interface.
- **Each Sudoku will be marked with 2 lettered arrows. You need to submit the digits in these arrows, in order, including the givens, and click on submit button.**
- **If participants face any technical difficulty during submissions, they can email screenshots of answer keys for solved grids to logicmasteradmin@gmail.com before their timer ends.**

Scoring

Points typically indicate difficulty of the Sudokus and time required to solve them. While the organizers have made best efforts to match them, your personal experience and preference may differ.

Instant Grading

This test uses instant grading in rounds 1-4, where a solver can submit any individual Sudoku and receive confirmation that the solution is correct or not. Each incorrect submission reduces the sudoku’s potential score. The first, second, third, and fourth incorrect submissions reduce the potential score to 90%, 70%, 40%, and 0% respectively.

Instant Grading will NOT be applicable in round 5. In round 5, answers can be submitted as many times as required. Only the last submission for each Sudoku shall be taken into consideration. Bonus shall be applied if all 8 sudokus are submitted correctly within the round timings. Otherwise, the points shall be awarded as per the scoring table for the round.

Bonus

It is possible that some players may finish all Sudokus in a round before the time allocated. A bonus of **10 points** for each full minute remaining will be awarded to any competitor who correctly solves every Sudoku in a round.

Tie Breaker

Ties will be broken using following rules:

- i) Maximum points in Round 3 (including bonus points in Round 3)
- ii) Maximum points in Round 2 (including bonus points in Round 2)
- iii) Maximum points in Round 5 (including bonus points in Round 5)
- iv) Maximum points in Round 1 (including bonus points in Round 1)
- v) Maximum points in Round 4 (including bonus points in Round 4)
- vi) Higher base point

SM Rules:

The top “inexperienced” players will be ranked according to their scores, to determine the Sudoku Mahabharat Winner. Ties will be broken using the above tie breaker rules.

Practice Materials

The online rounds of Sudoku Mahabharat will serve as great practice materials for the finals. You can access the Sudokus at <http://logicmastersindia.com/lmitests/downloads.asp?testFilter=SM>

Prohibited Materials

Any kind of external help from other persons, mobile, solvers, computers, etc is not allowed. If the organisers feel any kind of unfair means has been used, they can review/discard individual submissions.

Sudoku rules

The remaining pages in this booklet explain the rules of the types that will appear in the finals.

Example Credits

- Quadruple, Search Nine, Sum Frame, Clone – <http://akashdoulani.blogspot.com>
- Morse Numbers - WPF Sudoku GP 2019 - Round 3 (Turkey) – <http://gp.worldpuzzle.org>
- Sum by X - WPF Sudoku GP 2019 - Round 7 (Serbia) - <http://gp.worldpuzzle.org>
- Clock Faces - WPF Sudoku GP 2020 - Round 4 (Czech Republic) - <http://gp.worldpuzzle.org>

SM Eligibility and Base Points:

This year the competition is open to all.

Below is the tentative list of players who took part in the online episodes of Sudoku Mahabharat 2020 and their base points, and eligibility for SM.

NAME	ID	BASE POINTS	SM ELIGIBILITY
Prasanna Seshadri	prasanna16391	123	NO
Rohan Rao	Vopani	119	NO
Kishore Kumar	kishy72	107	NO
Pranav Kamesh S	pranavmanu	107	NO
Ashish Kumar	ashaash11ash	93	YES
Rishi Puri	purifire	83	NO
Amit Sowani	amitsowani	77	NO
Jayant Ameta	witty	77	YES
Rajesh Kumar	rajeshk	76	NO
Gaurav Kumar Jain	gaurav.kjain	75	NO
Manjiri	Manjiri	75	YES
Aashay Patil	aashay	72	YES
Vishal	Vishal	72	YES
Jaipal Reddy Mogiligundla	mjaipal	71	NO
Kartik Reddy	mkartik	71	YES
Suvarna	pndt	68	YES
Priyam Bhushan	priyambhushan	68	YES
Ritaban Datta	Reetoo	67	YES
pooja Bansal	Bansalpooja.b	66	YES
Avinash	avinash175	65	YES
shambo debnath	shambo	62	YES
sumedha thakur	sumedha234	62	YES
Tejal Phatak	Tejal Phatak	60	NO
Harmeet Singh	harmeet	58	YES
Lenson Andrade	lenson	58	YES
Hemant Kumar Malani	Hemant Kr Malani	57	YES
Poonam Gandhi	poonamgandhi	56	YES
Utkaarsh Somaiya	utkaarsh	56	YES
Kumaresan R	Kumaresan R	54	YES
K. Ravichandran	ravilp	54	YES
Dhruvarajsinh Puwar	dhruvarajsinhpuwar06	52	YES
Neeraj Mehrotra	neerajmehrotra	52	YES
Vijaya Rajan	vijaya_rajana	51	YES
Prabha Doshi	prabhadoshi	50	YES
Deepika Moningi	deepika m	49	YES
Damini Goyal	damini25	48	YES
amod	domarulz	48	YES
Venkatachalam V	Venkatachalam V	48	YES
Raman Garimella	rgarimella	47	YES
Mamta Singh	Aadvik	45	YES

NAME	ID	BASE POINTS	SM ELIGIBILITY
Akash Doulani	akash.doulani	45	YES
Sai Karthik Burra	carburra	45	YES
Anil Khosla	khuski	43	YES
M. Ezhilarasi	ezhilmathu.advo	42	YES
Falak	fal_94	42	YES
Chandrashekhar Todur	Chandrashekhar	41	YES
Anuradha Ganesh	Anu G	40	YES
Swati singh	avni	40	YES
Sravani Sripada	scampy	40	YES
Soumya	soun5	40	YES
Rajani Rokade	rajanirokade	39	YES
Bhuvaneshwari	Bhuvi	38	YES
Samata	sam_hegde	38	YES
Anukul	ggmu80	36	YES
Shri Vasantha Senaa S	sena	36	YES
Vinay Shenoy	vrs719	36	YES
Anithra P Janakiraman	anithra	35	YES
Gunasundhari D	gunasundharid	35	YES
SANJAY	sanjaymahesh	35	YES
Sitanshu Sah	sitaswag	35	YES
Vinitaa	vinitaawalia	35	YES
Devarajan D	devarajand	34	YES
Deepak Kumar	dipkmr	34	YES
Deepak	dmahesh	34	YES
Sunder Raman	sunderramanv	34	YES
Bharath K	ka_bharath	33	YES
K. Saraswathy	supervenky7	33	YES
Daniel Victor	DanAvi	32	YES
Lakshmi Samudrala	lakshmisv	32	YES
shashank shah	sha2nks1603	32	YES
Stephanie D'Souza	Stephanie	32	YES
Devika	devvy	31	YES
Kumari Bhawna	kumaribhawna	31	YES
Aakarshan Gupta	mugiwaaraLuffy	31	YES
sujaya	tsujaya	31	YES
Prateek Gupta	prateek706	30	YES
Vijaya	vijayat	30	YES
Vinita Maheshwari	Vinita123	30	YES
Ravi Prakash Narayanan	gn.raviprakash	29	YES
Arunesh Varade	KyaFarkPadtaHai	29	YES
Mamta	Mamta	29	YES
nishka	nish	29	YES
Swagatam Islam Sarkar	Swagatam	29	YES
Akshaya Bhatia	fusion3193@gmail.com	28	YES
P. Mohan Prashanth	mohanprashanth	28	YES
Dr. Neha Subhash Gaonkar	nehasg11	28	YES
Rajavel	rpmlrv	28	YES

NAME	ID	BASE POINTS	SM ELIGIBILITY
Narsimha Rao	mnrhyd	27	YES
Chakrapani S.	schakrapani71	27	YES
T. N. Venkatesh	tnv	27	YES
R K Swarnakar	RameshLMI	26	YES
RICHA	RICHA	26	YES
Abhishek Chaudhary	abhi265645	25	YES
Himani	Himani	25	YES
radh	radh	25	YES
Rashmi	rashmin	25	YES
Sonu Sharma	SN Sam	25	YES
swati mutha	swati1210	25	YES
Souvik Hui	huisouvik	24	YES
Ishita K	ish4	24	YES
Sherwin	Sherwin	24	YES
Jyoti	jsarwade	23	YES
Shaheer Rahman	shera90	23	YES
Anuj Shetty	anuj42	22	YES
Dinesh K Jain	dkj	22	YES
Valliappan	mvalliappan39	22	YES
Prerana Nirav Shah	perupps	22	YES
Rushabh Vora	Rushabh	22	YES
Sanjay Bijlani	sanjaybijlani	22	YES
Vaishali Goyal	v.goyal	22	YES
Prathamesh Baheti	prathameshb	21	YES
SHYAMAL DEY	skdey	21	YES
Akhila N R	akhila.hhp@gmail.com	20	YES
Gayatri Phadnis	GAYATRIP20	19	YES
Pranav Ravani	masterPranav	19	YES
Vishnu Nandakumaran	vishnu97	19	YES
Arshpreet Singh	arshpreet	18	YES
nilesh gala	nilesh22	18	YES
Harsh Poddar	hpoddar08	17	YES
KrishLovely	KrishLovely	17	YES
sumati	sumati	17	YES
Deepti Garg	deepti.garg	16	YES
Sudhanshu Mittal	sud	16	YES
Anubhav	ABcDexter	15	YES
Dev R	DevR	15	YES
Jayshree Furia	jayshreef	15	YES
Priyanka Jhawar	Pjhawar	15	YES
Bathri Narayanan	GBathri	14	YES
Meghna Shetty	megu	14	YES
sujit	purka	14	YES
Vaishali Goyal	vaishali09	14	YES
Vivek Jain	vjain9	13	YES
Gopal Nimmakayala	vnimmak	13	YES
Akhila.R	Akhila9288	12	YES

NAME	ID	BASE POINTS	SM ELIGIBILITY
bothrasumit	bothrasumit	12	NO
Madhup Tewari	madhupt	12	YES
raj kumar	raz	12	YES
Zalak Ghetia	zalak	12	YES
Swati	swatiasrani29	11	YES
Goverdhan Mittal	gmittal	10	YES
Gurneet Kaur Bhuller	GurneetKB	10	YES
Lakshmi	Lakshmi Dhaveji	10	YES
Madhav Sankaranarayanan	Madmahogany	10	YES
Monal	Monal	10	YES
Ramireddy	Ramu	10	YES
Amit Kumar Mallik	Amit_IITB	9	YES
bhupendra	bhupsingh	9	YES
null	nikhil_sudoku	9	YES
RAJAT SURAI	RAJAT_the_HERO	9	YES
Tarun Madan	tarunm	9	YES
Amith Nagaraj	amith1991	8	YES
Ayush Deval	Astrologer	8	YES
Daniel Babu	danielbabu	8	YES
Dhanush K P	dhanushkp	8	YES
Roopesh U	Roopesh95	8	YES
Shreyans Borad	Shreyans95	8	YES
Siddharth Matta	sidhu_iitr	8	YES
Chirag	terekokya	8	YES
Ankit Bhatnagar	ankitcom	7	YES
Ashutosh Tiwari	Ashut0sh	7	YES
Ashwin	ashwinparadkar	7	YES
Vividh Bansal	bansaviv	7	YES
Dillip kumar sahoo	dillip21	7	YES
Sameeksha Dwivedi	DWIVEDI_Sameeksha_	7	YES
Nidhi Goel	goelnidhi	7	YES
Tigran Wadia	HumveeRuin	7	YES
jagadish Naidu	jaggy311	7	YES
karuna ranjan	karunaraj	7	YES
kuldeep yadav	Kuldeepy	7	YES
VENUGOPAL MADDULA	m_venugopal1	7	YES
Ravi Kumar	ravichaluvadi	7	YES
Sarin Kumar	sarink	7	YES
saurabh	saurabhsaigal	7	YES
Aakash	aakashk9	6	YES
ANITA GUPTA	ANITA007	6	YES
Aditi Garg	Deepad	6	YES
Keshava Murthy H S	keshava.hs	6	YES
Mayank	mayank	6	YES
Mihir Yadav	mihiryadav	6	YES
Naveen	naveenjog	6	YES
Nitish Pasam	NitishPasam	6	YES

NAME	ID	BASE POINTS	SM ELIGIBILITY
Rajnish Kumari Yadav	RAJNESH YADAV	6	YES
Shriya Gera	Shriya	6	YES
siva	siva	6	YES
Sudhanshu Shekhar Pandey	sudhanshu	6	YES
L. Swetha	swethal	6	YES
Prakhar Gupta	adamkhor	5	YES
Ananya	ananya_90	5	YES
Anita	Anita1234	5	YES
Apurva	apurva101	5	YES
jitendra dayma	jitendradayma	5	YES
Lavanya krishnan	Lavanyakrishnan	5	YES
malika sikka	malikasikka	5	YES
Mrinalini Patil	mrinalini1512	5	YES
V Nehal Raju	nehalv1996	5	YES
Nishit Kosambia	Nishit	5	YES
Riyana	Riyana	5	YES
Roopesh U	ROOPESH	5	YES
Saumye Anshul Gupta	saumye001	5	YES
S.v.Saikumar	svsaikumar	5	YES
Arun Iyer	tenaliraman	5	YES
trisha	trisha	5	YES
C VIJAYA CHANDRA REDDY	vcreddy.cv	5	YES
Vishnu Gopakumar	Vishnu4620	5	YES
Adithya K	Adithyak1997	4	YES
Aashish Ghogre	ashishghogre	4	YES
Harsh Jain	jainharsh02	4	YES
Kirti Daryani	Kirti7689@gmail.com	4	YES
P R Anand Krishnan	krshnn	4	YES
Mridula	Mridula008	4	YES
Puwar Krutika	PuwarKrutika	4	YES
vijayaprasad	Ra_One	4	YES
ranju	ranjugeorge	4	YES
N. Rengaswamy	Renga	4	YES
Kelvin	Samurai#11	4	YES
Sanika	Sanika sb	4	YES
Sailaja Chivukula	schivukula17	4	YES
Shruti	Shitu	4	YES
Shreyasi Athalye	shreyasiathalye	4	YES
Shubham Pradeep Raj	Shubham_pradeep	4	YES
Sonali	Srk	4	YES
Sonali kamdar	srkamdar	4	YES
Vaibhavi R	vaibhavr	4	YES
Veena Viswanathan	veena	4	YES
Ananya V.	ananya95	3	YES
Anurag	anurag	3	YES
Archana Shah	archieshah	3	YES
Ayush Garg	ayushGarg	3	YES

NAME	ID	BASE POINTS	SM ELIGIBILITY
Raveena B	brainstormer	3	YES
Dayaanandu	doppleganager	3	YES
Hamma Singh	hamham	3	YES
Manish Pandey	InvincibleNobita	3	YES
Pankaj Jain	jainpanki	3	YES
Jay Dadhania	JRD	3	YES
Prabhava N	npabbi	3	YES
Prachi Mathur	Prachi.012	3	YES
Prakhar	prakhar_016	3	YES
Rohit Prabhakar	RoGeRrr	3	YES
Roopkatha	roop123	3	YES
saksham	saksham	3	YES
Shashidhar Bilagi	shashidharbilagi	3	YES
Udhayabanu	Udhaya	3	YES
Vivek Bhansali	vbhansali9	3	YES
AJITH KUMAR V	ajith211@gmail.com	2	YES
Abhishek Gupta	Dhruva_123	2	YES
swetha	klarsi	2	YES
Neeraj	neal0892	2	YES
Priya Banthia	Priya Banthia	2	YES
Sai Pranav	sai pranav	2	YES
Sudip Kumar Pal	Sudip88	2	YES
Vishakha Manjarekar	vishakhahm	2	YES
Vaibhav Gawas	vkg17	2	YES
Akshitha	Akshitha	1	YES
Asmita Bardhan Ray	Asmita	1	YES
Debapriyo	DebLuck	1	YES
Gunjan Garg	GunjanBoss	1	YES
gurjot	gurjot	1	YES
Saif Khan	jonessaif	1	YES
Madhu Mehta	Madhu03	1	YES
manohar	manohar	1	YES
Ritika Gupta	RitikaGupta	1	YES
Varsha	VDM	1	YES
VISHALI	VISHALI	1	YES

List of ISC Winners (2015-2019)

<u>Year</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
2019	Rohan Rao	Kishore Kumar	Prasanna Seshadri
2018	Rohan Rao	Prasanna Seshadri	Pranav Kamesh
2017	Rohan Rao	Kishore Kumar	Rishi Puri
2016	Rohan Rao	Rakesh Rai	Kishore Kumar
2015	Rishi Puri	Prasanna Seshadri	Rohan Rao

List of SM Winners (2015-2019)

<u>Year</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
2019	Pooja Bansal	Aashay Patil	Avinash
2018	Shaheer Rahman	Aashay Patil	Kartik Reddy
2017	Pranav Kamesh	Jayant Ameta	Hemant Malani
2016	Akash Doulani	Gaurav Jain	Harmeet Singh
2015	Amit Sowani	Rakesh Rai	Gaurav Jain

This Round will have 6 Classic Sudokus of varying difficulties, and 6 commonly encountered sudoku variants.

Sudoku	Points
Alphabet Sudoku	55 points
Classic Sudoku 1	30 points
Classic Sudoku 2	35 points
Classic Sudoku 3	35 points
Classic Sudoku 4	45 points
Classic Sudoku 5	40 points
Classic Sudoku 6	40 points
Odd Even Sudoku	70 points
Trio Sudoku	25 points
Diagonal Sudoku	65 points
Extra Region Sudoku	80 points
Killer Sudoku	80 points

1. Alphabet Sudoku (55 points)

Place the given alphabets into the grid, so that each row, column and 3x3 box contain each alphabet exactly once.

Alphabets [A,D,F,K,L,O,R,S,U] are used in the below example. The set of letters in the contest may be different.

F	O			U		K	R	
U	R			K			D	A
			O					
		D			R			
	U			O				
S			F			L		
					L			
	F	O		A		K	L	
	L	U				R	A	

F	O	A	L	D	U	S	K	R
U	R	L	S	K	F	O	D	A
K	D	S	O	R	A	U	F	L
O	K	D	A	L	R	F	S	U
L	U	F	D	O	S	A	R	K
S	A	R	F	U	K	L	O	D
A	S	K	R	F	L	D	U	O
R	F	O	U	A	D	K	L	S
D	L	U	K	S	O	R	A	F

65 min

600 points

The Archetypes

(2-7). Classic Sudoku (30 + 35 + 35 + 45 + 40 + 40 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 3x3 box.

	1	2	3	4				
	5	6	7	8				
	9	1	2	3				
	4	5	6	7				2
							8	5
						4	9	
					7	1		
				2	1			

7	8	3	1	5	2	6	4	9
9	1	2	3	4	6	5	7	8
4	5	6	7	8	9	2	3	1
8	9	1	2	3	5	7	6	4
3	4	5	6	7	8	9	1	2
2	6	7	9	1	4	3	8	5
1	2	8	5	6	3	4	9	7
5	3	4	8	9	7	1	2	6
6	7	9	4	2	1	8	5	3

8. Odd Even Sudoku (70 points)

Apply Classic Sudoku rules. Additionally, each cell marked with a square must contain an even digit (2/4/6/8), and each cell marked with a circle must contain an odd digit (1/3/5/7/9).

○		4	6	7		○	1	2
	○				○		□	8
1				□		5		○
8			○		1		□	3
4		□		5		○		1
	○		9		4			□
○		1		○		2	□	
2	□		□			□	3	○
3	4	○	2	8	□		○	9

⑤	3	4	6	7	8	⑨	1	2
6	⑦	2	1	9	⑤	3	4	8
1	9	8	3	4	2	5	6	⑦
8	5	9	⑦	6	1	4	2	3
4	2	6	8	5	3	⑦	9	1
7	①	3	9	2	4	8	5	6
⑨	6	1	5	③	7	2	8	4
2	8	7	4	1	9	6	3	⑤
3	4	⑤	2	8	6	1	⑦	9

9. Trio Sudoku (25 points)

Apply classic Sudoku rules. Cells with circles must contain the digits 1, 2 and 3. Cells with squares must contain the digits 4,5 and 6. Blank cells must contain the digits 7, 8 and 9.

□	○			□	○	○	□	
○	□		○	4	○	□		
○		6	□	○		②	□	
	○	□		○	□		○	□
	9	○	○	□	○		5	□
□	□	○	□			○		○
		③	○	□	□	7	□	○
○	○	□	□	8		□	○	
□	□			○	○	□		○

4	②	9	8	7	6	③	①	5
③	5	8	②	4	①	6	9	7
①	7	6	5	③	9	②	4	8
8	③	4	7	①	5	9	②	6
7	9	①	③	6	②	8	5	4
5	6	②	4	9	8	①	7	③
9	8	③	①	5	4	7	6	②
②	①	5	6	8	7	4	③	9
6	4	7	9	②	③	5	8	①

65 min

600 points

The Archetypes

10. Diagonal Sudoku (65 points)

Apply Classic Sudoku rules. Additionally, each main diagonal (marked by dotted lines) must contain digits from 1-9.

4				1	5	
8				6		7
7			2			
	5		1			
		6	8	2	5	
			9			7
			8			2
6			2			5
	8	2				3

2	4	3	9	7	8	1	5	6
8	9	1	4	5	6	3	2	7
7	6	5	3	2	1	8	9	4
3	5	9	6	1	7	2	4	8
4	7	6	8	3	2	5	1	9
1	2	8	5	9	4	6	7	3
5	3	4	1	8	9	7	6	2
6	1	7	2	4	3	9	8	5
9	8	2	7	6	5	4	3	1

11. Extra Region Sudoku (80 points)

Apply Classic Sudoku rules. Additionally, each extra region must contain digits from 1-9. The extra regions are of 9 cells each and are shaded in the grid.

					8			
	2	5	4	7	1			
	4							
	3					1	8	
	1			2		5		
6	9					4		
						8		
			3	4	6	5	9	
			9					

1	6	9	2	3	8	4	7	5
8	2	5	4	7	1	9	3	6
7	4	3	5	6	9	8	2	1
5	3	2	6	9	4	7	1	8
4	1	7	8	2	3	6	5	9
6	9	8	1	5	7	2	4	3
9	5	6	7	1	2	3	8	4
2	8	1	3	4	6	5	9	7
3	7	4	9	8	5	1	6	2

12. Killer Sudoku (80 points)

Apply classic Sudoku rules. Additionally, the sum of digits in cells inside every cage must equal the total given for the cage at the upper left cell. Digits do not repeat inside a cage.

8		16		20		6		
22		15		9		13		30
	24	8		28	10		15	
19		8		8				24
		7		8		10		
	21		18		14		16	

8	3	4	16	6	9	20	5	6	1	2	
22	5	1	15	2	4	8	13	9	3	30	
2	7	9		1	5	3	4	8	6		
8	24	5	8	7	28	10	6	15	2	9	
7	6	4		9	8	2	1	5	3		
19	9	2	8	3	5	6	8	1	7	4	24
6	3	7		4	8	1	9	10	8	7	5
1	21	8	5	18	3	7	14	2	16	9	4
4	9	7		8	2	5	3	6	1		

This Round will have one classic sudoku and ten Sudoku Variants of varying difficulties, representing some of the online rounds of Sudoku Mahabharat 2020.

Category	Variant	Points
Classic	Classic Sudoku	35 points
Converse	Anti-knight Sudoku	75 points
Twisted Classic	Overlapping Sudoku	45 points
Standard	Thermo Sudoku	65 points
Odd Even	Odd Even Bridge Sudoku	100 points
Neighbours	Fortress Sudoku	80 points
Irregular	Irregular Sudoku	100 points
Math	Little Killer Sudoku	90 points
Hybrid	Renban - Palindrome Sudoku	110 points
Outside	Unordered Distances Sudoku	80 points
Substitution	Substitution Sudoku	120 points

1. Classic Sudoku (35 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 3x3 box.

	1	2	3	4				
	5	6	7	8				
	9	1	2	3				
	4	5	6	7				2
							8	5
						4	9	
					7	1		
				2	1			

7	8	3	1	5	2	6	4	9
9	1	2	3	4	6	5	7	8
4	5	6	7	8	9	2	3	1
8	9	1	2	3	5	7	6	4
3	4	5	6	7	8	9	1	2
2	6	7	9	1	4	3	8	5
1	2	8	5	6	3	4	9	7
5	3	4	8	9	7	1	2	6
6	7	9	4	2	1	8	5	3

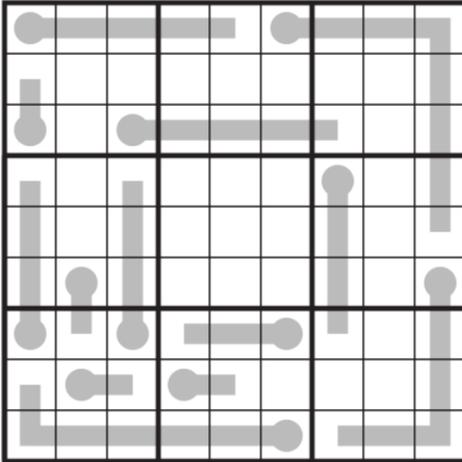
95 min

900 points

SM Reflections

4. Thermo Sudoku (65 points)

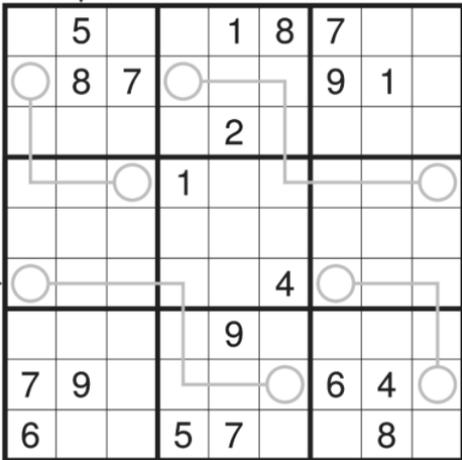
Apply classic Sudoku rules. Additionally, the digits in each "thermometer" shaped region must be strictly increasing from the circular "bulb" to the other end(s).



1	6	7	8	9	2	3	4	5
4	8	5	1	3	7	2	9	6
2	9	3	4	5	6	8	1	7
7	3	9	6	1	5	4	2	8
6	1	8	2	4	3	5	7	9
5	4	2	7	8	9	6	3	1
3	5	1	9	6	4	7	8	2
9	2	4	5	7	8	1	6	3
8	7	6	3	2	1	9	5	4

5. Odd Even Bridge Sudoku (100 points)

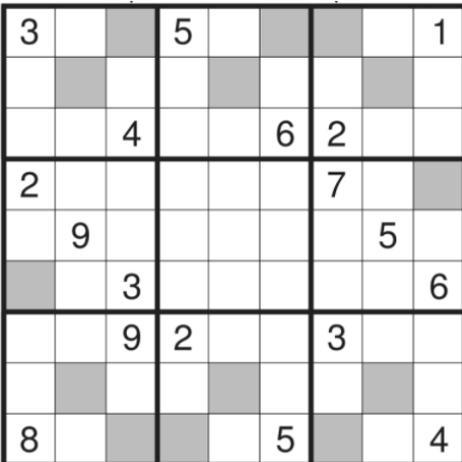
Apply classic Sudoku rules. Additionally, some circled cells are connected by a bridge. An odd digit in a circle equals the number of odd digits on the bridge. An even digit in a circle equals the number of even digits on the bridge. The digits on the circles are not counted. It is possible for digits in both circles on a bridge to have the same parity.



9	5	3	6	1	8	7	2	4
2	8	7	3	4	5	9	1	6
4	6	1	9	2	7	8	3	5
8	7	2	1	5	9	4	6	3
5	4	6	8	3	2	1	9	7
3	1	9	7	6	4	2	5	8
1	3	8	4	9	6	5	7	2
7	9	5	2	8	3	6	4	1
6	2	4	5	7	1	3	8	9

6. Fortress Sudoku (80 points)

Apply classic sudoku rules. There is a fortress on the playground formed by shaded cells. The shaded cells have to be greater than the horizontally or vertically adjacent white cells.



3	2	8	5	4	7	9	6	1
6	7	5	1	9	2	4	8	3
9	1	4	3	8	6	2	7	5
2	8	1	6	5	4	7	3	9
4	9	6	7	3	1	8	5	2
7	5	3	8	2	9	1	4	6
5	4	9	2	6	8	3	1	7
1	6	2	4	7	3	5	9	8
8	3	7	9	1	5	6	2	4

95 min

900 points

SM Reflections

7. Irregular Sudoku (100 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and outlined region. Each outlined region is marked by thick borders.

				9		3		5
					4			9
		4				6		
			8	5				
1								4
				7	8			
		2				4		
2			6					
4		8		6				

8	4	6	2	9	7	3	1	5
5	6	1	3	2	4	8	7	9
7	2	4	5	1	9	6	8	3
3	9	7	8	5	2	1	4	6
1	3	9	7	8	6	5	2	4
9	5	3	4	7	8	2	6	1
6	8	2	9	3	1	4	5	7
2	1	5	6	4	3	7	9	8
4	7	8	1	6	5	9	3	2

8. Little Killer Sudoku (90 points)

Apply classic Sudoku rules. Additionally, the numbers with arrows outside the grid indicate the sum of the digits appearing in the cells in the corresponding direction. Digits can repeat in the direction of the arrow.

Arrows and sums: Top (2, 10, 9, 17, 33), Right (4, 7, 16, 28, 27), Bottom (18, 28, 21, 5, 8), Left (16, 20, 12, 15, 6).

2	6	3	1	7	8	9	5	4
4	1	7	5	9	3	8	6	2
5	8	9	4	6	2	3	7	1
1	3	6	9	2	4	7	8	5
9	4	8	7	3	5	2	1	6
7	2	5	6	8	1	4	3	9
3	9	2	8	5	6	1	4	7
8	5	1	2	4	7	6	9	3
6	7	4	3	1	9	5	2	8

Arrows and sums: Top (2, 10, 9, 17, 33), Right (4, 7, 16, 28, 27), Bottom (18, 28, 21, 5, 8), Left (16, 20, 12, 15, 6).

9. Renban - Palindrome Sudoku (110 points)

Apply classic Sudoku rules.

Renban rules: Each marked extra region contains a set of consecutive digits in any order.

Palindrome rules: The digits in the cells with the grey line form palindromes, i.e. they read the same from both the directions.

	8		1	9		7		
				4				
		9	3			1		
				7				
4								6
			8					
		7		3		4		
	1	3			7	6	9	

3	8	5	1	6	9	2	7	4
9	2	6	7	4	3	8	5	1
7	4	1	2	8	5	9	6	3
5	6	9	3	2	4	1	8	7
1	3	2	6	7	8	5	4	9
4	7	8	5	9	1	3	2	6
2	9	4	8	1	6	7	3	5
6	5	7	9	3	2	4	1	8
8	1	3	4	5	7	6	9	2

95 min

900 points

SM Reflections

10. Unordered Distances Sudoku (80 points)

Apply classic Sudoku rules. Outside some rows and columns, the distance between two digits in that row or column is given. The order of the two digits is **NOT** given and is to be determined as part of solving.

4-9:2	3-6:1	6-9:4	2-7:5	4-6:4	4-8:6	3-7:3	2-4:6	3-5:4	
1								6	1-6:8
	6								6-9:4
		4				1			2-4:2
			5						6-7:5
				4					4-5:4
					2				4-5:7
		1				7			6-7:6
							6		4-6:6
7								1	5-7:5

4-9:2	3-6:1	6-9:4	2-7:5	4-6:4	4-8:6	3-7:3	2-4:6	3-5:4	
1	3	7	2	5	8	9	4	6	1-6:8
8	6	5	4	1	9	2	3	7	6-9:4
2	9	4	6	7	3	1	8	5	2-4:2
9	2	6	5	8	1	3	7	4	6-7:5
5	7	3	9	4	6	8	1	2	4-5:4
4	1	8	7	3	2	6	5	9	4-5:7
6	5	1	8	9	4	7	2	3	6-7:6
3	4	9	1	2	7	5	6	8	4-6:6
7	8	2	3	6	5	4	9	1	5-7:5

11. Substitution Sudoku (120 points)

Apply classic Sudoku rules. A cell with an alphabet contains a digit whose mapped word contains the corresponding alphabet.

(Note that in the word list for the puzzle **diacritical marks are important**, e.g: *E* and *Ĕ* are separate alphabets)

- 1 : ONE
- 2 : TWO
- 3 : THREE
- 4 : FOUR
- 5 : FIVE
- 6 : SIX
- 7 : SEVEN
- 8 : EIGHT
- 9 : NINE

E		T	H	R	E	E		S
I								E
G		F		N		F		V
H		I		I		O		E
T		V		N		U		N
		E		E		R		
9	4						1	3
			O	N	E			
S	I	X				T	W	O

5	7	2	3	4	1	9	8	6
6	3	9	7	8	5	2	4	1
8	1	4	6	9	2	5	3	7
3	9	5	2	6	4	1	7	8
2	6	7	8	1	3	4	5	9
4	8	1	9	5	7	3	6	2
9	4	8	5	2	6	7	1	3
1	2	3	4	7	8	6	9	5
7	5	6	1	3	9	8	2	4

70 min

650 points

The Voguish

2. Windoku (60 points)

Apply Classic Sudoku rules. Each of the four shaded 3x3 boxes contains each digit from 1 to 9.

				6	2			
	1			5		7		
		2					8	
			3					6
	6						5	
7					4			
	8					5		
		9		4			6	
		3	5					

9	4	7	8	3	6	2	1	5
8	1	6	4	5	2	7	3	9
3	5	2	7	1	9	6	8	4
2	9	8	3	7	5	1	4	6
4	6	1	9	2	8	3	5	7
7	3	5	1	6	4	9	2	8
1	8	4	6	9	3	5	7	2
5	7	9	2	4	1	8	6	3
6	2	3	5	8	7	4	9	1

3. Slot Machine Sudoku (35 points)

Apply Classic Sudoku rules. Additionally, columns 2, 5 and 8 are similar to a slot machine: they contain numbers with the same order/ sequence. The strips wrap around the grid for the ordering.

		6	9			8		
9			4					1
						4		
		3						
			1		9			
						5		
		8						
5					2			9
		9			8	2		

4	3	6	9	1	7	8	2	5
9	8	2	4	3	5	6	7	1
7	5	1	2	8	6	4	9	3
1	2	3	8	5	4	9	6	7
6	7	5	1	2	9	3	4	8
8	9	4	6	7	3	5	1	2
2	6	8	5	9	1	7	3	4
5	4	7	3	6	2	1	8	9
3	1	9	7	4	8	2	5	6

4. Morse Numbers Sudoku (60 points)

Apply classic sudoku rules. In each arrow, the pattern of odd and even digits, reading towards the circle, will represent the Morse code of the digit in the circle. O represents odd digits and E represents even digits.

3	9			5			8	6
1		6	7		8	3		9
		8				4		
	7						3	
9								4
4								5
7								3
	2							9
	9	4	7	1	5			

- 1 = OEEEE
- 2 = OEEEE
- 3 = OOOEE
- 4 = OOOOE
- 5 = OOOOO
- 6 = EOOOO
- 7 = EEOOO
- 8 = EEEEE
- 9 = EEEEE

3	9	7	1	5	4	2	8	6
1	4	6	7	2	8	3	5	9
2	5	8	9	6	3	4	1	7
6	7	2	5	4	9	1	3	8
9	1	5	3	8	7	6	2	4
4	8	3	6	1	2	9	7	5
7	6	1	2	9	5	8	4	3
5	2	4	8	3	6	7	9	1
8	3	9	4	7	1	5	6	2

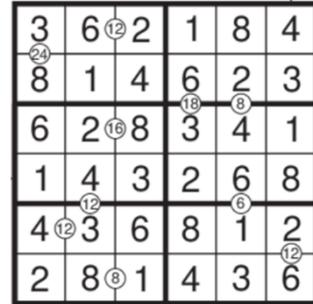
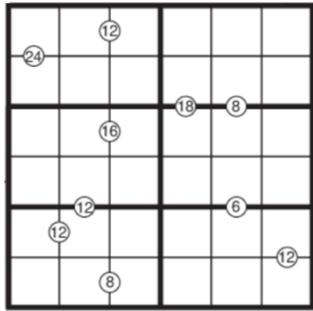
45 min

400 points

Mean Minis

2. Product Sudoku (15 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2x3 box. Exactly six digits must be used. Additionally, given numbers between two cells indicate the product of the two numbers in those cells.

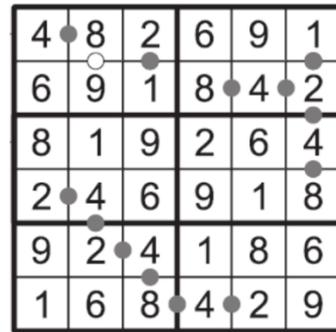
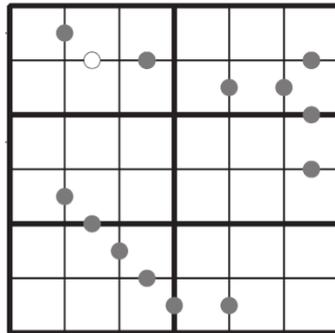


1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
✓	✓	✓	✓		✓		✓	

3. Kropki Sudoku (15 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2x3 box. Exactly six digits must be used. If the difference between digits in orthogonally adjacent cells is 1, then they are separated by a white dot. If the digit in a cell is half of the digit in an orthogonally adjacent cell, then they are separated by a black dot. The dot between '1' and '2' can have any of these dots. All possible dots are marked.

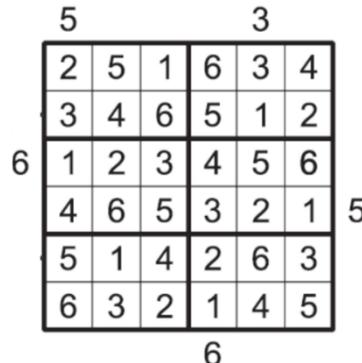
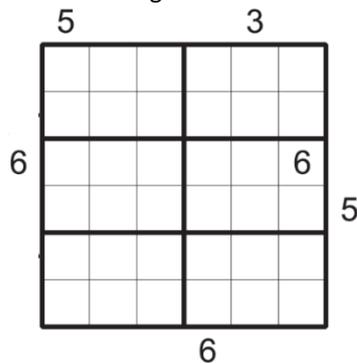


1	2	3	4	5	6	7	8	9

1	2	3	4	5	6	7	8	9
✓	✓		✓		✓		✓	✓

4. Skyscrapers Sudoku (15 points)

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 2x3 box. Additionally, consider each number to be the height of a building. The numbers outside the grid indicate how many buildings can be seen when looking in that direction (taller buildings conceal smaller buildings behind them). Exactly six digits must be used inside the grid. The outside skyscraper clues may contain digits which are not used inside the grid.



1	2	3	4	5	6	7	8	9
					✓			

1	2	3	4	5	6	7	8	9
✓	✓	✓	✓	✓	✓			

This Round will have 2 Classic Sudokus and 6 Sudoku Variants.

General rules for this round:

- In each Sudoku grid, four cells are marked by circles.
- These circles serve as a link between Sudokus 1-4 and Sudokus 5-8.
- Each of the first four Sudokus has a pair in the next four Sudokus.
- It is a part of solving to identify the pairs.
- All four digits in the circles from one Sudoku (Sudoku 1-4) should be transferred to the Sudoku which is its pair (Sudokus 5-8). Digits may repeat within the four digits.
- The order in which the digits are transferred can be arbitrary.
- Other than the linkage, the circles can be ignored while solving.
- Some sudokus may have multiple solutions but the complete round can be solved in only one way.
- Partial points will be given only for every correct grid which is part of the complete solution.
- The partial points will be awarded based on the number of sudokus solved correctly as part of the overall solution.

Number of Sudokus correctly solved	Points
1 Sudoku	75 points
2 Sudokus	150 points
3 Sudokus	225 points
4 Sudokus	300 points
5 Sudokus	400 points
6 Sudokus	475 points
7 Sudokus	550 points
8 Sudokus	650 points

- The puzzles in the puzzle booklet will be laid out so that the puzzles 1-4 are on one sheet while puzzles 5-8 will be on a separate sheet of paper.

1. Classic Sudoku

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 3x3 box.

2. Search Nine Sudoku

Apply classic Sudoku rules. Additionally, each arrow points to the 9 in the respective row or column. The number in the cell with the arrow is the distance from the cell to the 9 in this row or column.

3. Hundred Sudoku

Apply classic Sudoku rules. Additionally, in each row, the sum of number combinations in the grey cells is exactly 100.

4. Core Sudoku

Apply classic Sudoku rules. Additionally, there are some loops in the grid. Digits inside each loop cannot be placed on the corresponding loop.

5. Classic Sudoku

Place a digit from 1 to 9 in each empty cell so that each digit appears exactly once in each row, column and 3x3 box.

6. Clone Sudoku

Apply classic Sudoku rules. Additionally, digits in each corresponding cell in both shaded figures are identical.

7. Frame Sum Sudoku

Apply classic Sudoku rules. Additionally, digits outside the grid indicate the sum of the first 3 digits in the corresponding direction.

8. Key Digit Sudoku

Apply classic Sudoku rules. All occurrences of exactly one digit must appear in shaded cells. This digit needs to be identified as part of solving.

70 min

650 points

1. Classic Sudoku

		7				5		
	○		8		1		○	
2				6				8
	9		7				4	
		5		2		7		
	1				6		5	
4				3				1
	○		4		9		○	
		1				8		

2. Search Nine Sudoku

→	→	→			→	→		
→				→		↓		
→				○			○	
	←	←			←	←	←	
								↑
				→	→	→		↑
	→		→	○			○	↑
→					↑			
						↑	←	

3. Hundred Sudoku

								6
			○	4	6			5
7			8					
	2				○			
		8	3		7	5		
							8	
					4			8
2		○	5	8				
1				○				

4. Core Sudoku

5	2	3				1			
						2		7	
					○	3	○		
	3	8	7			6			
9			3	○	4	○		7	
			5		9	6	3		
			1						
	7		2						
			6				8	5	2

70 min

650 points

5. Classic Sudoku

6. Clone Sudoku

3				8	4			
		4	1			9		○
	9			3			5	
2						○		8
8		5	○		○	4		1
4								3
	1			9			6	
		3			5	1		
			3	2				5

6					2	1		
	■	■	■	○	1	5	6	
	■	■	■			8	2	9
	■	○					5	3
	■			■	■	■	■	
2	3			■	■	○		
3	5	4		○	■			
	8	2	3	■				
		1	9					2

7. Frame Sum Sudoku

8. Key Digit Sudoku

	7		14		21		14		7
19									14
	7							9	
15									14
	2	○	1		3	○	6		
10									14
	6		9		5		1		
15		○					○		14
	1						4		
19									14
	23			10					23

■		7	8		○	4	■	○	■
3				9	■	■	2		6
1	■	■	■	3			8	■	■
■	2					5	■		4
■		3	■	○	■		6	○	■
6		■	4					2	■
■	6	■		5	■				1
9		4	■	■	6				2
■	■	■		8			7	6	■

70 min

650 points

Linked Pairs

Solutions

1. Classic Sudoku

1	8	7	2	9	4	5	6	3
9	6	3	8	5	1	4	2	7
2	5	4	3	6	7	9	1	8
3	9	2	7	8	5	1	4	6
6	4	5	1	2	3	7	8	9
7	1	8	9	4	6	3	5	2
4	2	9	5	3	8	6	7	1
8	7	6	4	1	9	2	3	5
5	3	1	6	7	2	8	9	4

2. Search 9 Sudoku

8	7	6	4	5	3	2	1	9
5	2	3	7	1	9	4	6	8
1	9	4	6	8	2	5	3	7
9	1	2	8	4	5	6	7	3
3	5	8	9	6	7	1	2	4
4	6	7	3	2	1	9	8	5
2	3	5	1	9	8	7	4	6
7	4	1	5	3	6	8	9	2
6	8	9	2	7	4	3	5	1

3. Hundred Sudoku

4	1	9	7	2	5	8	3	6
8	3	2	9	4	6	1	7	5
7	6	5	8	3	1	9	2	4
3	2	1	4	5	8	6	9	7
9	4	8	3	6	7	5	1	2
6	5	7	1	9	2	4	8	3
5	9	3	2	1	4	7	6	8
2	7	6	5	8	9	3	4	1
1	8	4	6	7	3	2	5	9

4. Core Sudoku

5	2	3	9	7	1	4	6	8
4	6	9	8	5	2	1	7	3
7	8	1	4	6	3	9	2	5
1	3	8	7	2	6	5	9	4
9	5	6	3	1	4	2	8	7
2	4	7	5	8	9	6	3	1
8	9	2	1	3	5	7	4	6
6	7	5	2	4	8	3	1	9
3	1	4	6	9	7	8	5	2

5. Classic Sudoku

3	5	7	9	8	4	2	1	6
6	8	4	1	5	2	9	3	7
1	9	2	7	3	6	8	5	4
2	3	1	5	4	9	6	7	8
8	6	5	2	7	3	4	9	1
4	7	9	6	1	8	5	2	3
5	1	8	4	9	7	3	6	2
7	2	3	8	6	5	1	4	9
9	4	6	3	2	1	7	8	5

6. Clone Sudoku

6	9	7	5	8	2	1	3	4
8	2	3	4	9	1	5	6	7
1	4	5	6	3	7	8	2	9
4	7	8	1	6	9	2	5	3
5	1	6	7	2	3	4	9	8
2	3	9	8	4	5	6	7	1
3	5	4	2	7	8	9	1	6
9	8	2	3	1	6	7	4	5
7	6	1	9	5	4	3	8	2

7. Frame Sum Sudoku

	7	14	21	14	7					
19	4	9	6	3	7	2	5	8	1	14
	1	7	3	4	5	8	6	9	2	
15	2	8	5	6	9	1	3	7	4	14
	7	2	9	1	4	3	8	6	5	
10	5	4	1	7	8	6	9	2	3	14
	3	6	8	9	2	5	4	1	7	
15	6	5	4	8	1	7	2	3	9	14
	8	1	2	5	3	9	7	4	6	
19	9	3	7	2	6	4	1	5	8	14
	23		10				23			

8. Key Digit Sudoku

2	7	8	5	6	4	3	1	9
3	4	5	9	1	8	2	7	6
1	9	6	2	3	7	4	8	5
7	2	9	6	8	5	1	3	4
4	5	3	7	2	1	6	9	8
6	8	1	4	9	3	5	2	7
8	6	7	3	5	2	9	4	1
9	3	4	1	7	6	8	5	2
5	1	2	8	4	9	7	6	3

Linked Pairs

- Sudoku 1 – Sudoku 5
- Sudoku 2 – Sudoku 7
- Sudoku 3 – Sudoku 6
- Sudoku 4 – Sudoku 8



There shall be no playoffs this year.

The final scores among the eligible participants after five rounds, including base points and bonus points, shall be used to determine the SM Winners.

Ties will be broken using following rules:

- i) Maximum points in Round 3 (including bonus points in Round 3)
- ii) Maximum points in Round 2 (including bonus points in Round 2)
- iii) Maximum points in Round 5 (including bonus points in Round 5)
- iv) Maximum points in Round 1 (including bonus points in Round 1)
- v) Maximum points in Round 4 (including bonus points in Round 4)
- vi) Higher base points