Indian Puzzle Championship 2014

25-May-2014

http://logicmastersindia.com/2014/IPC/

Important Links

Submission: http://logicmastersindia.com/2014/IPC/

Discussion: http://logicmastersindia.com/t/?tid=830

Results: http://logicmastersindia.com/2014/IPC/score.asp

F.A.Q: http://logicmastersindia.com/t/?tid=381

Registration, if required: http://logicmastersindia.com/register.asp

About Indian Puzzle Championship (IPC) 2014

The Indian Puzzle Championship 2014 will be held online on 25th May, 2014. Participation is free of cost and everyone is invited to participate in the event irrespective of age. There are no prerequisites/requirements for participation. All you will need to do is register at Logic Masters India (LMI).

Top competitors will represent India at the World Puzzle Championship 2014 which will be held in London, UK in August, 2014.

Participation

This instruction booklet lists all the puzzle types that will appear in IPC. It is important to read and understand rules of all the puzzles. There will not be any interface / applet to solve the puzzles on web browser. The puzzle booklet should be downloaded, printed and solved on paper. Each puzzle has 1 or 2 answer keys. After solving the puzzle, you need to submit the puzzle using the answer keys.

On 25th May at 14:00 hours, you need to login on the IPC webpage at LMI using your id and password. Once you click on 'Start', you will be shown the password for the puzzle booklet. Your timer will start at this point.

The puzzle booklet will have approximately 15 pages. Most of the puzzles are designed to be solved faster on paper. We advise you to have a printer accessible with enough paper.

Timings

The length of the championship is 150 minutes. So, after getting the password, you have 150 minutes to print the puzzles, solve them, find the answer keys and submit your answers. Submissions will not be accepted after 150 minutes.

IPC 2014 will start on 25th May at 14:00 hours IST. Answer submissions will not be accepted after 16:45 hours (or 150 minutes after you start, whichever is earlier). You must start accordingly to allow yourself full solving time.

International Participation

IPC will be open for a longer period for international players to participate at their own convenience. Indians participating out of the official period will not be considered for official Indian ratings.

Outside Help

Outside solving help of any kind is not permitted. This includes but is not limited to: assistance of any kind from any other person; prepared notes, books, calculators, computers, or tools other than items explicitly permitted.

You are allowed to use writing implements, eraser, blank paper (including commercial graph paper), ruler, scissors, and tape.

Judging

All entries and scores are subject to review for rules compliance. Winners may be asked to sign an affidavit confirming that they did, in fact, abide by the rules of the competition. The organizers reserve the right to disqualify any contestant if, in their sole judgment, they believe the rules have been violated.

In case of a dispute, protest, or other judgment, the decision of the judges is final.

Ranking

Ranking will be based on following rules in order:
1. Most total points
2. Earliest final submission time, upto seconds (ignoring incorrect submissions)

About answer keys and Submission

1. You may submit the answer keys anytime during the test duration of 150 minutes. You may consider submitting a puzzle as soon as you solve it.
2. You may submit an answer multiple times, only the latest submission will be taken into consideration.
3. Answer keys are always to be entered from left to right or top to bottom
4. Don't enter any separator unless specified in the answer key
5. If one row and one column is marked, enter the row first and then the column
6. If multiple rows are marked, enter from top to bottom for marked rows
7. If multiple columns are marked, enter from left to right for marked columns
8. If horizontal and vertical keys are needed, first enter the horizontal and then the vertical
9. Uppercase or lower case of answer key does not matter
10. Characters other than alphabets, numbers and comma will be removed while checking the answer

Acknowledgements

Only for Indian Participants

1. Submissions until 16:45 on 25th will be considered for official scoring.
2. The organizers do not anticipate any technical problems during the championship. However, if you face any problems while submitting the answers, you may email your answers to `logicmasteradmin@gmail.com` before 16:45 pm. Submissions via email is discouraged and will be accepted only in exceptional cases.

Scoring

Each puzzle is allotted points. You will get full points if you enter the correct answer key.

Points typically indicate difficulty of the puzzles and time required to solve them. However, your personal experience may differ.

There is no negative penalty for incorrect submission.

Points Table

A1 - Match the Following	5	A2 - Match the Following	20	A3 - Match the Following	5
A4 - Match the Following	5	A5 - Match the Following	5		
B1 - As Easy As ABC	10	B2 - As Easy As ABC	20	B3 - Spirally As ABC	45
C1 - TomTom	25	C2 - TomTom	55	C3 - Coded TomTom	60
D1 - Battleships	10	D2 - Battleships	65	D3 - Battleships Observer	30
E1 - Regional Star Battle	20	E2 - Regional Star Battle	20		
F1 - Cross the Streams	30	F2 - Cross the Streams	25		
G1 - Nurikabe	15	G2 - Nurikabe	15	G3 - Word Nurikabe	50
H1 - Tetromino Division	15	H2 - Pentomino Division	30		
I1 - Araf	25	I2 - Araf	35	I3 - Araf[Different Neigh.]	75
J1 - Maximal Lengths	25	J2 - Minimal Lengths	20	J3 - Minimal Lengths	30
K1 - Slitherlink	15	K2 - Slitherlink	20	K3 - Toroidal Slitherlink	65
L1 - Snake	20	L2 - Snake	40	M - Tiki Tours	50

Bonus

- ✺ Players submitting all 35 puzzles are eligible for bonus points.
  - ○ If 35 are correct, 6 points per minute saved.
  - ○ If 33 are correct and 2 are almost-correct, 5 points per minute saved.
- ✺ Bonus will be computed upto seconds.
- ✺ There will not be any "Claim Bonus" button.

Goals of the IPC

- ✺ To determine the National Champion by testing participants with puzzles of varying difficulty.
- ✺ To select the Indian team for the World Puzzle Championships, by testing endurance and adaptability to various different puzzle types.
- ✺ To have enough for newcomers to be able to attempt, by having a simple, accessible puzzle in most types.

Other Notes

- ✺ To achieve all the goals simultaneously, there has been an effort to increase variety as well as number of easy puzzles. Hence, the slightly larger quantity of puzzles. The focus is to have something for everyone, be it logic-wise or difficulty-wise.
- ✺ We would love to hear your feedback after the contest, in the discussion thread of the forum.
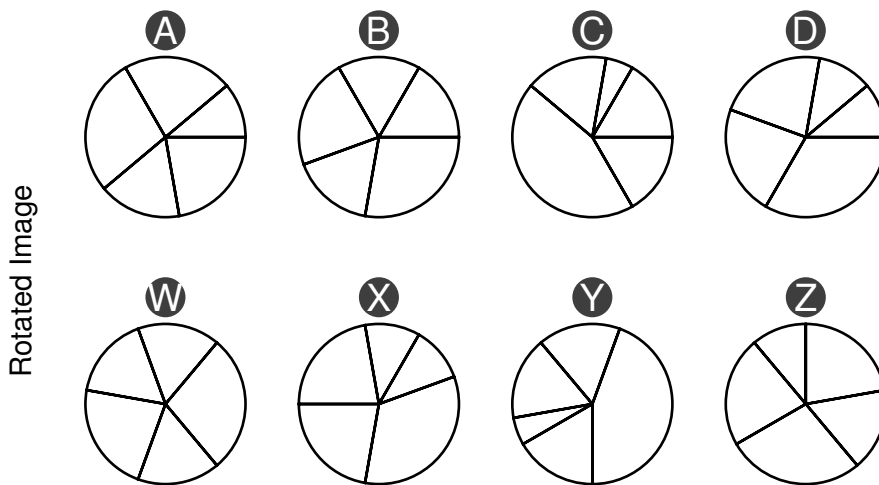- ✺ Good Luck and Skill to everyone. Enjoy the competition!

✤ In each puzzle, match the two sets of information. There will be one constant way to match them, either given or needing to be determined by the solver.

✤ Note that there may be multiple matches for a single option but considering the 4 options together on either side, there will be 4 unique matches.

Equations

(A) 10+9+8+(7/1)+6

(B) (10/5)+9+8+7+6

(C) 10+9+(8/2)+7+6

(D) 10+(9/3)+8+7+6

(W) 32

(X) 34

(Y) 36

(Z) 40

Answer Key is ZWYX or BDCA

Make Equations

(A) 6 ☐ 4 ☐ 2 =

(B) 2 ☐ 4 ☐ 8 =

(C) 7 ☐ 9 ☐ 3 =

(D) 6 ☐ 5 ☐ 2 =

(W) 13

(X) 14

(Y) 15

(Z) 16

Place an arithmetic operator (÷ × + -) in each of the boxes, and compute the equation. Operator precedence applies. No operator can be used more than once in an equation.

Answer Key is XZWY or CADB

Rotated Image

(A) (B) (C) (D)

(W) (X) (Y) (Z)

Answer Key is ZWYX or BDCA

- Place a letter from the given set in some blank cells, so that each letter appears exactly once in each row and each column.
- Some cells will remain empty in each row and column.
- The letters outside the grid show the first seen letter from that direction.

A, B, C
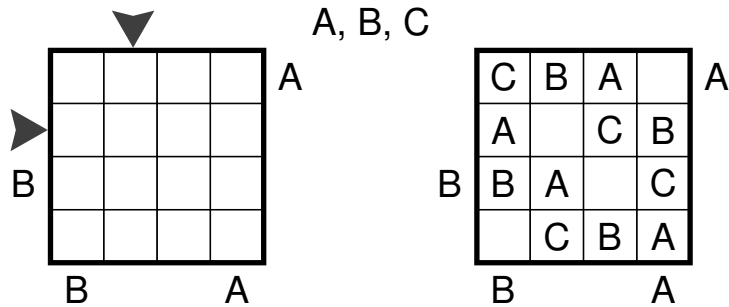
Answer Key: Enter the letters in the marked directions. Enter X for blank cells.
For the example, the answer key is AXCB,BXAC

- Apply rules of B1 – As Easy As ABC.
- There are some lines within the grid which divide the white cells so that there is a continuous path.
- This path must contain the letters of the given range in order.
- E.g. For a given range A-D, the letters will be in the order A-B-C-D-A-B-C-D-A… and so on, from the open end to the closed end (i.e. from outside to inside).

A,B,C,D
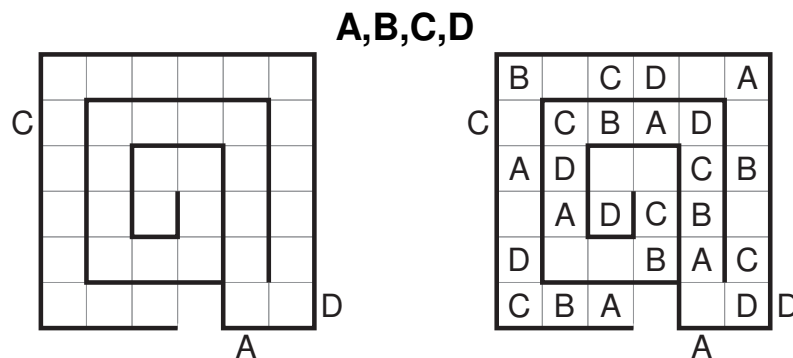
Answer Key: Same as B1,B2 – As Easy As ABC

C1, C2 – TomTom

- Place a digit from 1 to N in each cell of the N by N grid such that each digit appears exactly once in each row and column.
- The value in the upper-left of each bold region indicates the value after some mathematical operation (addition, subtraction, multiplication, or division) is applied to the numbers in that region.
- For division and subtraction, start from the largest number

1	5		1
8	4		
	4		4
7			

¹1	⁵2	3	¹4
⁸2	⁴1	4	3
4	⁴3	1	⁴2
⁷3	4	2	1

Answer Key: Enter the digits in the marked directions.
For the example, the answer key is 1234, 2143

C3 – Coded TomTom

- In this TomTom puzzle, 0-9 has been replaced with A-J with each letter representing a unique digit.
- Zero cannot be the first digit of a multi-digit number.
- The mathematical operation to be used in each region is already given.
- The grids are to be filled with A-F where A < B < C < D < E < F.

AF+	ACC×		C+
	H−	AG+	
F÷		C	J+	FC×
	B×		
I+		AE×	E

Fill grid with the 5 digits A-E
where A < B < C < D < E

12+	144×			4+
4	6	8	3	1
8	7−1	10+6	4	3
2÷3	8	4	9+1	24×6
6	3×3	1	8	4
5+1	4	18×3	6	8

Answer Key: Same as C1, C2 – TomTom

D1, D2 – Battleships

- Locate the given fleet in the grid, so that each segment of a ship occupies a single cell.
- Ships do not touch each other, not even diagonally.
- Some ship segments, or sea cells without any ship segments, are given in the grid.
- The numbers on the right and bottom edges of the grid reveal the number of ship segments in that row or column.

Answer Key: *For each row from top to bottom, enter the column position of left most ship. Enter X if no ships. For the example, the answer key is GBXAXBEB*

D3 – Battleships Observer

- Instead of numbers outside the grid, this puzzle has numbers inside the grid.
- Numbers in the grid indicate the total amount of empty cells that can be seen from that cell till it sees a ship or border in all four directions, not counting the cell itself.
- Ships can't be placed on cells with numbers.

Answer Key: *Same as D1, D2 – Battleships*

E1, E2 – Regional Star Battle

- Place 2 stars in each row and each column.
- Stars do not touch each other, not even diagonally.
- Each outlined region contains same number of stars.

A B C D E F G H I

Answer Key: For each row from top to bottom, enter the column position of left most star.
For the example, the answer key is GBFAEAEBD
This example appeared in WPC'2011 instructions booklet as (Star Battle) Small Regions.

F1,F2 – Cross the Streams

- Shade some blank cells to create a single group of shaded cells that are all connected to each other horizontally or vertically.
- Shaded cells do not form 2X2 squares.
- Numbers to the left/top of the grid represent the groups of consecutive shaded cells which are in that row/column in order, either from left to right or from top to bottom.
- A question mark (?) represents a group of consecutive shaded cells whose size is unknown; an asterisk (*) represents any number of unknown groups of shaded cells, **including none at all**.

Answer key: Enter the number of each group of continuous cells which are un-shaded / shaded in the marked direction. The answer key for the example is 2211, 123

G1,G2 – Nurikabe

- ✎ Shade some blank cells so that the grid is divided into white regions.
- ✎ Each white region contains exactly one numbered cell and has same area as the number.
- ✎ Two white regions may only touch each other diagonally.
- ✎ All shaded cells are connected to each other horizontally or vertically.
- ✎ Shaded cells do not form 2X2 squares.

Answer key: Same as F1, F2 – Cross the Streams

G3 – Word Nurikabe

- ✎ Follow rules of G1, G2 – Nurikabe.
- ✎ Here, the islands are made up of the words given in the list next to the grid.
- ✎ The words must be snake-like without forming 2X2 squares.

THIS
IS
SMALL
EXAMPLE

Answer key: Enter the letters in the marked directions, ignoring the shaded cells in between.
For the example, the answer key is E, SLS
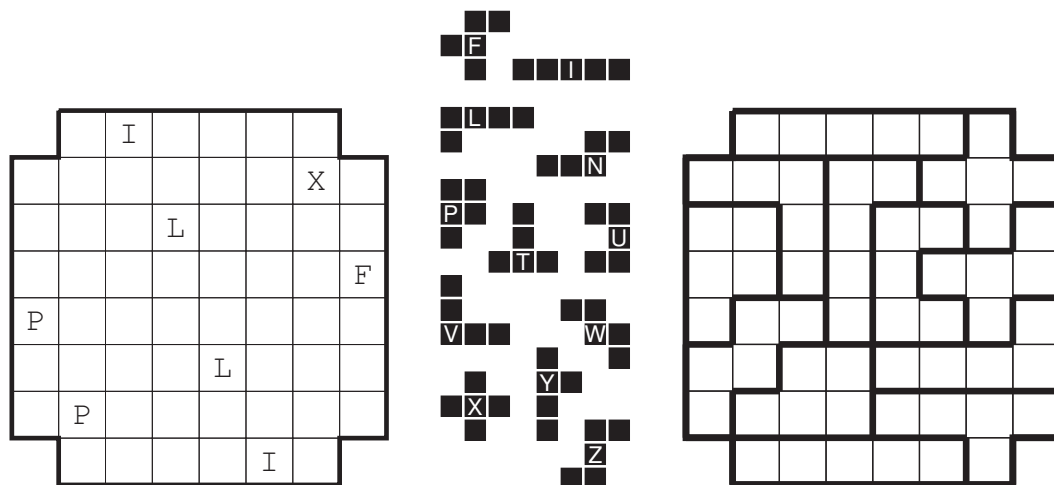
H1 – Tetromino Division

- ✤ Divide the grid into tetrominoes, so that two identical tetrominoes cannot share an edge (may touch diagonally).
- ✤ Tetrominoes that are rotations/ reflections of each other are considered identical.
- ✤ Each tetromino is represented with a letter.
- ✤ Cells with letters should belong to the corresponding tetrominoes. Each tetromino may contain at most one letter.
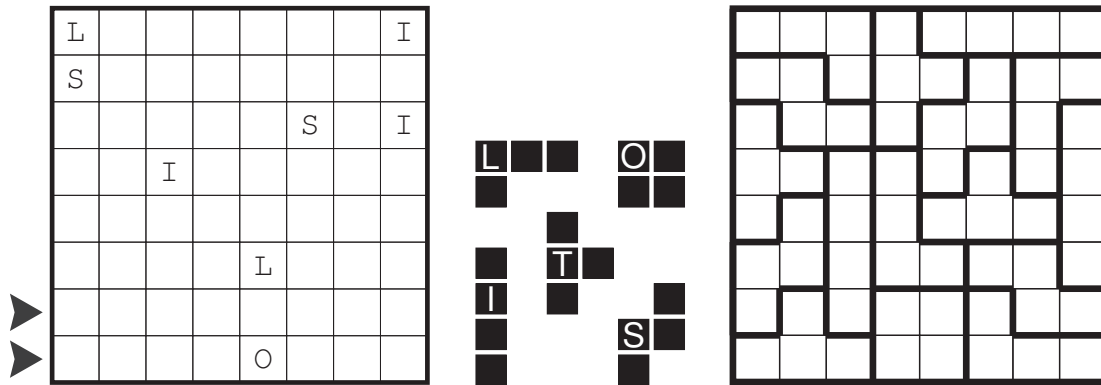
Answer key: In marked directions, enter the number of cells between the separate thick borders that are a part of that row. The answers for the example would be 111212, 323

H2 – Pentomino Division

- ✤ Divide the grid into pentominoes, so that two identical pentominoes cannot share an edge (may touch diagonally).
- ✤ Pentominoes that are rotations/ reflections of each other are considered identical.
- ✤ Each pentomino is represented with a letter.
- ✤ Cells with letters should belong to the corresponding pentominoes. Each pentomino may contain at most one letter.

**Answer key: Same as H1 – Tetromino Division**

I1, I2 – Araf

- ↳ Divide the grid into connected regions so that each of these regions contains exactly two numbers.
- ↳ The area of a region should be strictly between the two values given by the two numbers in that region.
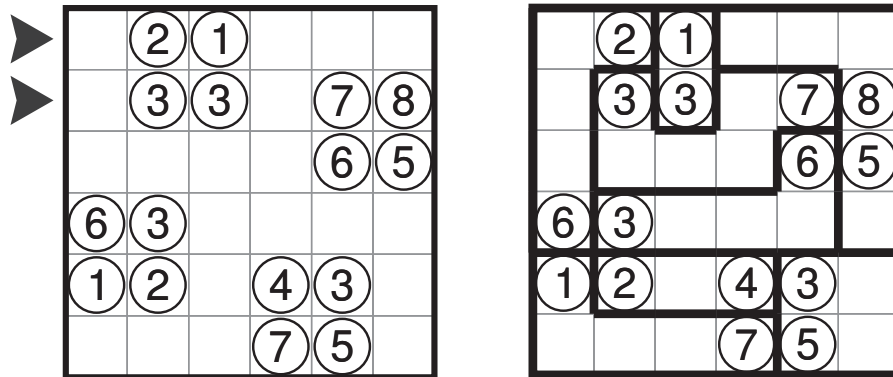
Answer key: Enter the sizes of the regions appearing in the marked directions (if the same region has more than one instance of white cells in the same row/column, enter each instance).
For the example, the answer key is 526, 56266

I3 – Araf [Different Neighbors]

- ↳ Apply rules of I1, I2 – Araf.
- ↳ Same size regions cannot touch each other horizontally or vertically.
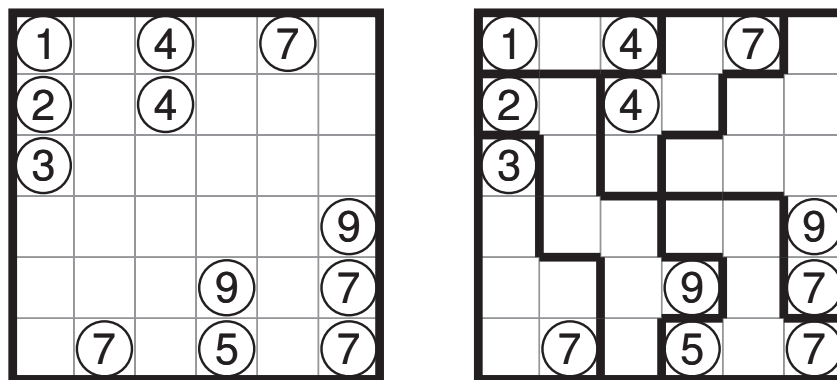
Answer key: Same as I1, I2 – Araf
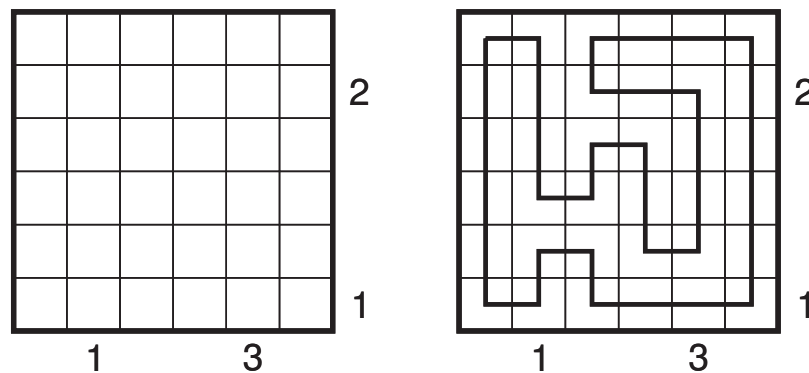
J1 – Maximal Lengths

- ↳ Draw a single closed loop passing through all cells in the grid.
- ↳ The clues outside give the maximum length of the longest path segment along that row/column (Length is equal to the number of crossed gridlines).
- ↳ There must be at least one path segment with this length.
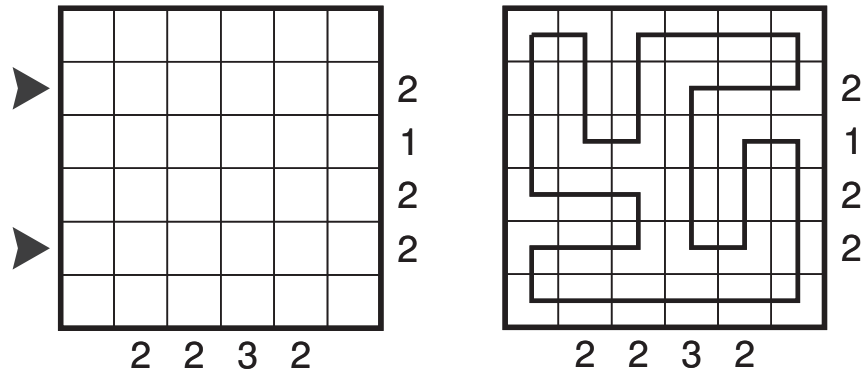
Answer key: Enter the lengths of the loop segments in the marked directions.
For the example, answer key is 2,21

J2, J3 – Minimal Lengths

- ↳ Draw a single closed loop passing through all cells in the grid.
- ↳ The clues outside give the length of the shortest path segment travelling along that row or column.
- ↳ There must be at least one path segment with this length.
- ↳ Paths that cross the row/column straight across (e.g. have length = "0") are ignored when finding the shortest length.

Answer Key: Same as J1 – Maximal Lengths

Ä Draw a single continuous loop along the dotted line segments.
Ä The loop cannot intersect or collide with itself.
Ä Clues given inside the cell indicate the count of line segments surrounding the cell that are part of the loop.
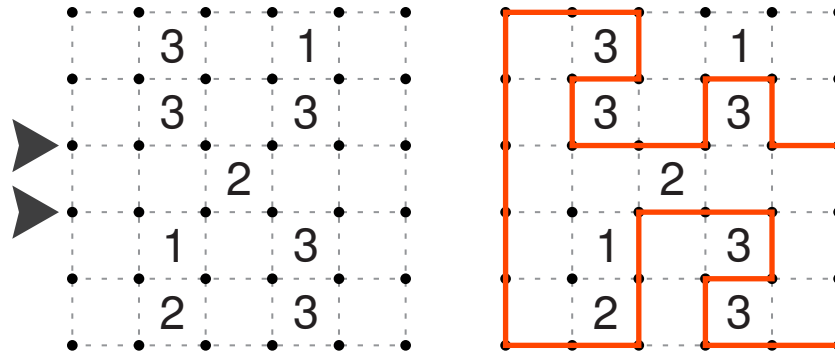
Answer Key: Enter the lengths of the Loop segments in the marked directions.
For the example, the answer key is 21, 2

Ä Apply rules of K1, K2 – Slitherlink.
Ä The loop can wrap around the grid.
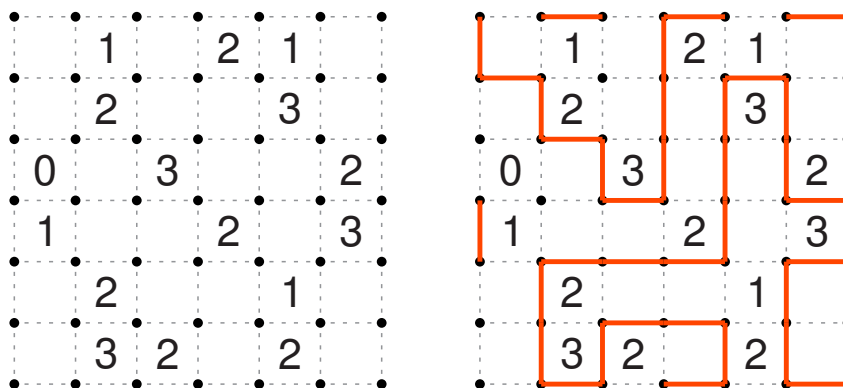
Answer Key: Same as K1, K2 – Slitherlink

L1, L2 – Snake

- ✧ Locate a snake in the grid, whose head and tail are given, but length is unknown.
- ✧ The snake does not touch itself even at a point.
- ✧ Numbers outside the grid indicate lengths of snake segments in the corresponding direction.

Answer Key: Same as F1, F2 – Cross the Streams (with snake segments being "shaded" and other cells being "un-shaded")

M – Tiki Tour

- ✧ For each tree in the grid, draw a tent in one of the four adjacent cells.
- ✧ The tent cells cannot touch each other, not even diagonally, although they can be next to other trees.
- ✧ Also draw a simple loop passing through the centres of all of the remaining empty cells.

Answer Key: Same as J1, J2 – Maximal Lengths.

> Note: Tiki tour is a New Zealand slang expression, meaning to travel around and get sidetracked rather than going directly from A to B.