Melon's Puzzle Packs

Volume I: Slitherlink

By

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January 1, 2012

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Introduction

This pack contains 35 Slitherlink puzzles, a little over half of which are variations of some kind. The puzzles span a wide range of difficulties from very accessible to fairly difficult. If you are new to Slitherlink or even logic puzzles in general, there is also a tutorial provided at the beginning to help bring you up to speed.

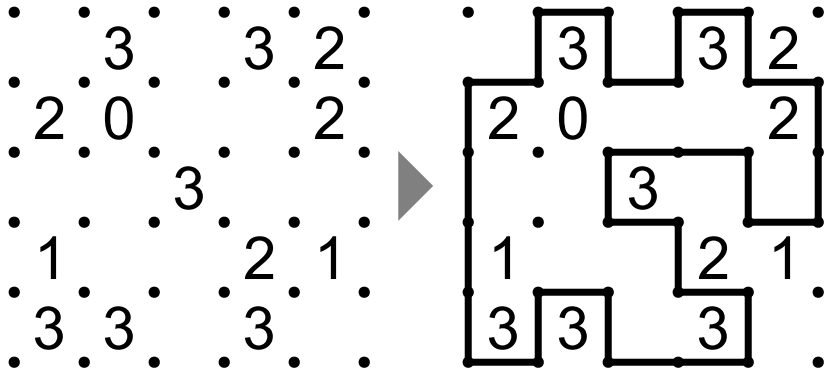
Each puzzle has a certain number of melon icons at the top right indicating the difficulty as estimated by the author. The more melons, the harder the puzzle. But keep in mind that your experience may vary.

If you are struggling with a puzzle, the Hints section provides a tip for each puzzle that may help, usually describing how to get past a sticking point near the start. Solutions are in the back if you get really stumped or want to check your work.

Slitherlink Tutorial

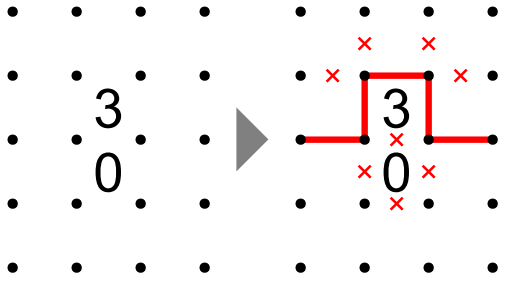
In Slitherlink, you are to draw a single closed loop of horizontal and vertical line segments between the dots. The loop may not touch or intersect itself. A number in a square tells how many of the four sides of the square are part of the loop. The solution will be unique.

Below is a small example puzzle with its solution. A walkthrough for this example begins on page 4.



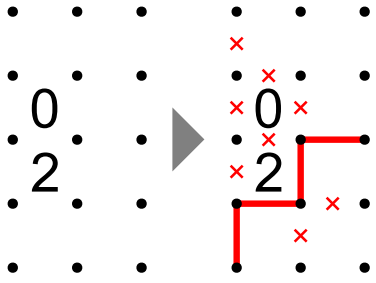
One of the most appealing things about solving Slitherlink puzzles is the immense number of patterns and theorems that can be built from this very simple set of rules. Much of the process involved in solving Slitherlink puzzles is recognizing occurrences of these patterns and applying them to steadily build up the loop until it is completed. Below are 10 very basic patterns to help you get started on thinking about what kinds of rules there are to be found.

0 next to a 3



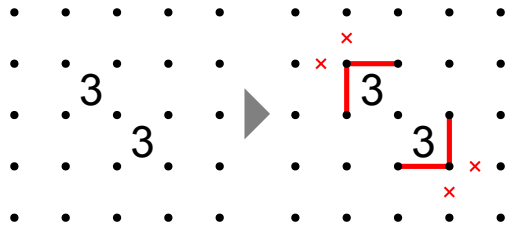
One of the most basic patterns is a 0 next to a 3, which allows you to figure out right away the location of the three segments around the 3.

0 next to a 2 on edge



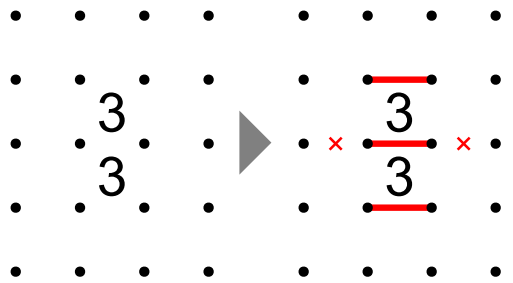
When a 0 is on the edge of the puzzle, two of the dots become dead ends and can't be used at all. The extra X's this gets you allow you to determine the segments around a 2 if it is on the edge and next to a 0.

3s touching diagonally



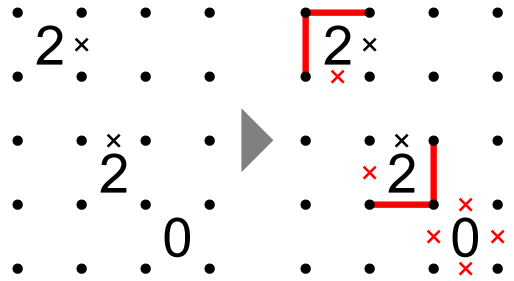
The center dot between two diagonally touching 3s can have at most two segments on it, like any other dot. Since we need six segments in all around the 3s, the only way for the totals to work out is if the outside four segments are all part of the loop.

Adjacent 3s



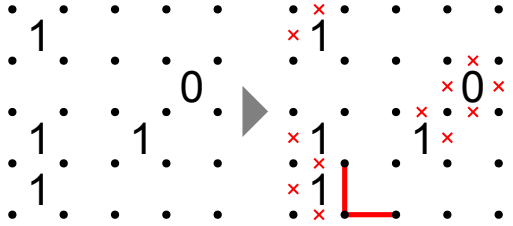
Again, the two middle dots can have at most two segments, so each one contributes at least one X to one of the 3s. Following this logic through fully gets all of the drawn segments and Xs.

2 in a corner with an X



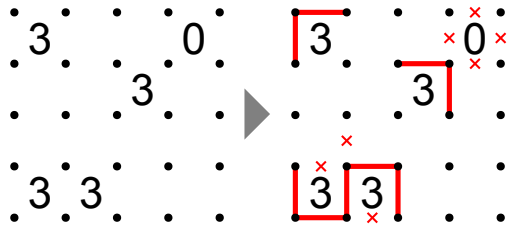
An extension of the 02 pattern from before. If you have a 2 boxed in a corner, whether through being on the edge of the puzzle or from two X's, you only need one more X around it to determine its two segments.

1 in a corner



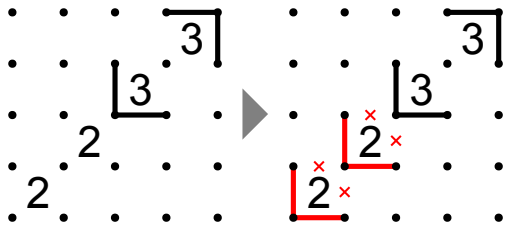
Similarly, if a 1 is boxed in a corner, using the dot next to that corner requires two segments around the 1. So that dot is unusable and you can draw X's around it. As shown in the lower left, watch for ways to chain this pattern together.

3 in a corner



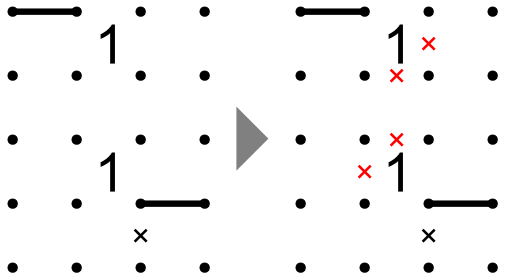
When a 3 is boxed in a corner, you have to use the dot next to that corner. This can often be combined with some patterns, like adjacent 3s, to fully determine the three segments.

Cornered 2s



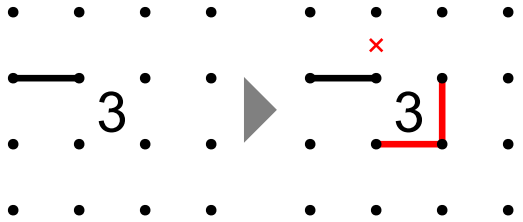
When a corner of the loop touches a 2 at a point, you can determine the 2's segments immediately. As shown above, this pattern can sometimes be chained together.

Segment touching a 1



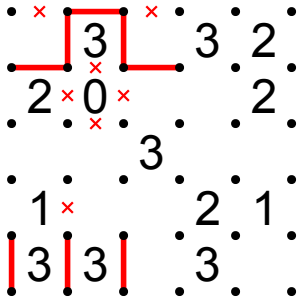
If you have a segment next to a 1 and it can't turn away, either because of being on the edge or because of an X, the segment around the 1 is reduced to one of two positions. This allows you to draw in some Xs.

Segment touching a 3



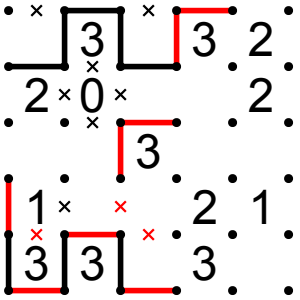
If a segment touches a 3, this immediately gives you two of its segments. You also get an X from the fact that a corner of the loop can't touch a 3 at a point.

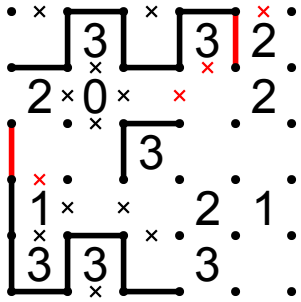
Let's go over how we would solve the example puzzle from page 2 using many of these ideas.



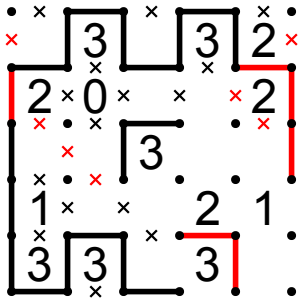
To start, we can recognize some of the basic patterns with a 0 next to a 3 (top left) or a 3 next to a 3 (bottom left).

After this, we can also find some 3s boxed into corners. In row 3 column 3 (R3C3), we have two Xs next to the top left dot from the 0. In R1C4, the 3 is bounded by the edge of the puzzle and an X. In R5C1, the 3 is actually in the corner of the puzzle. We can combine this with the adjacent 3s pattern observed before to solve most of the lower left corner.





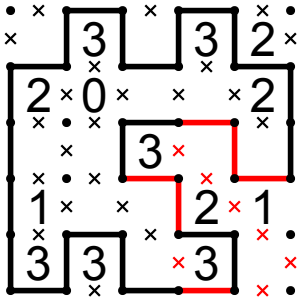
On the left, the 1 has been finished, so we can draw an X and continue the segment across the left edge. In the top right, our new segments created a corner in one of the dots, and the Xs that gives us allow us to finish the 3 on R1C4.



The top left dot is a dead-end, so we can X the space below it. This allows us to finish the loop on the left edge and get some more Xs from dead-ends.

In R1C5, we have a 2 in a corner with an X, so we can finish its segments. This also determines the 2 below it. Finally, in the bottom, we have a segment next to a 3, allowing us to apply that pattern.

From here the puzzle can be straightforwardly finished by continuing the segments around the R3C3 clue, which are nearly trapped by the Xs we've drawn.



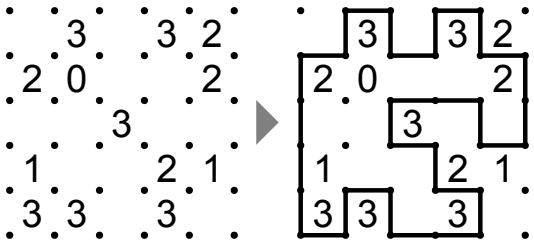
Here are some additional tips for solving Slitherlinks.

- Avoid the temptation to guess when you get stuck. Even the hardest of the puzzles in this pack can be thought through logically without any need for trial and error.
- Keep your eyes pealed for dots that are dead ends and can't be used, and draw the appropriate X's in. You can sometimes eliminate several dots in a row this way.
- Don't forget the rule that you must draw just one loop. If two ends of a path are about to link up when you still have plenty of clues left to satisfy, you need to ensure those two ends avoid each other.
- One of the most important observations about Slitherlink puzzles is that every dot is connected to exactly 0 or exactly 2 segments of the loop. Several additional rules can be derived from this observation, especially based on the parity of clues (i.e. whether the clue is even or odd).
- Remember that the patterns given above are anything but exhaustive, so be prepared to stretch your mind a little for harder puzzles. One of the more enjoyable aspects of solving Slitherlinks is finding these new rules and ideas on your own.

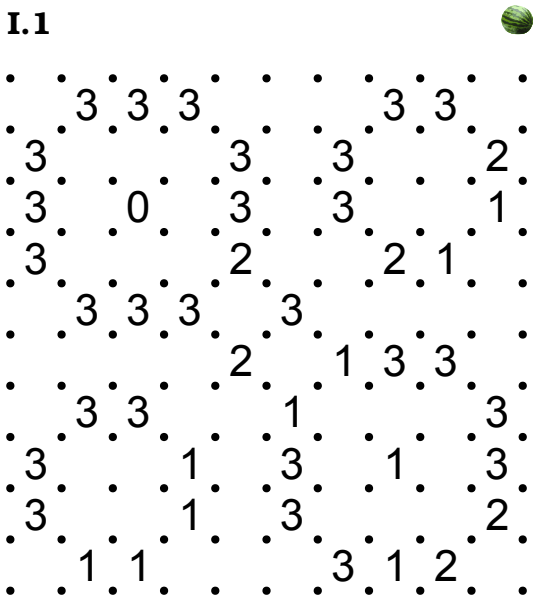
Classic Slitherlinks

The following 15 Slitherlink puzzles use the standard set of rules. See page 2 for instructions. The example from the tutorial has been reproduced below. Most of the puzzles here are on the easier side, although even hardened veterans might stumble on some of the later ones.

Example



I.1



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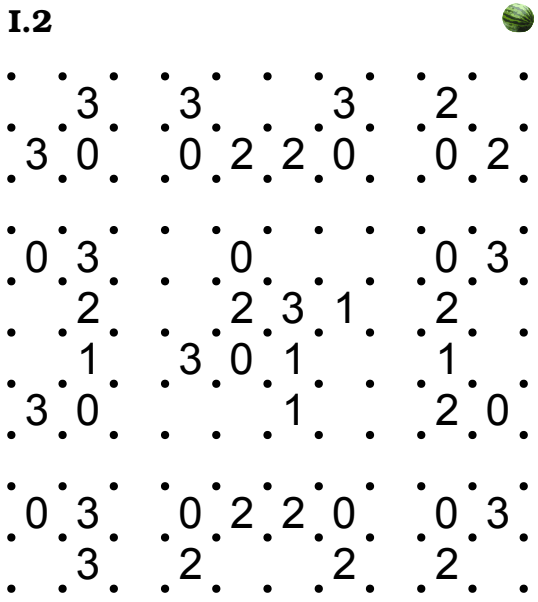
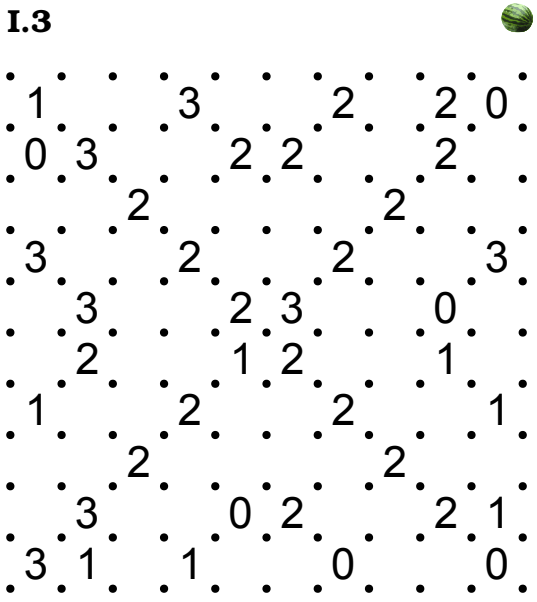
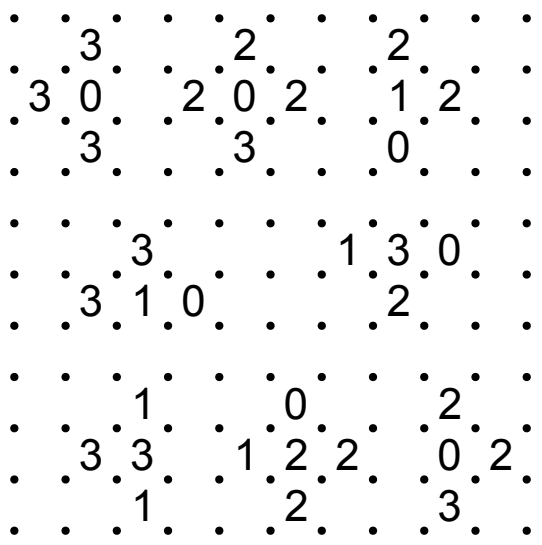


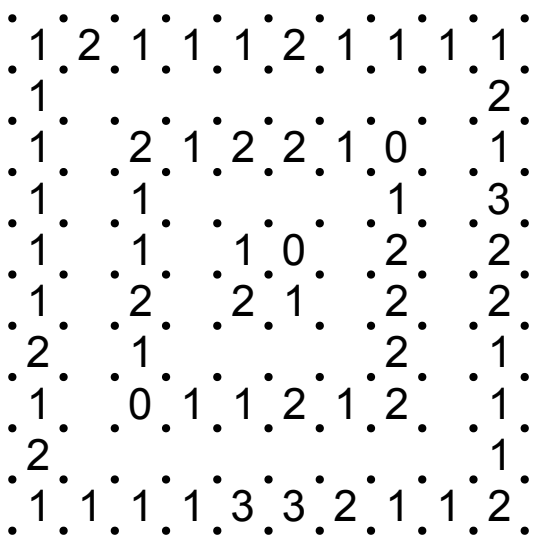
I.3



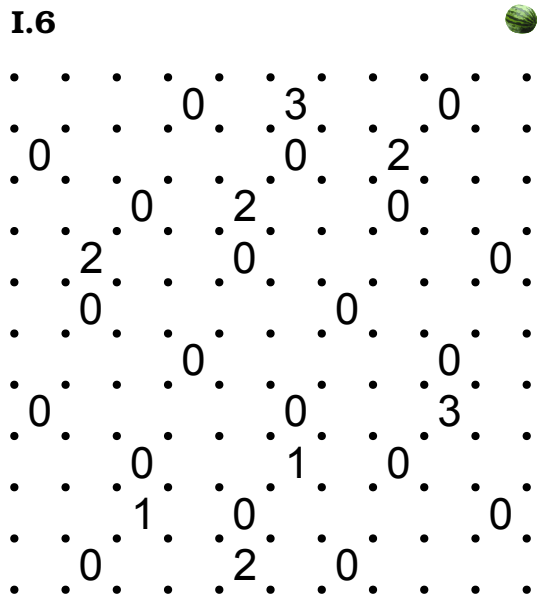
I.4



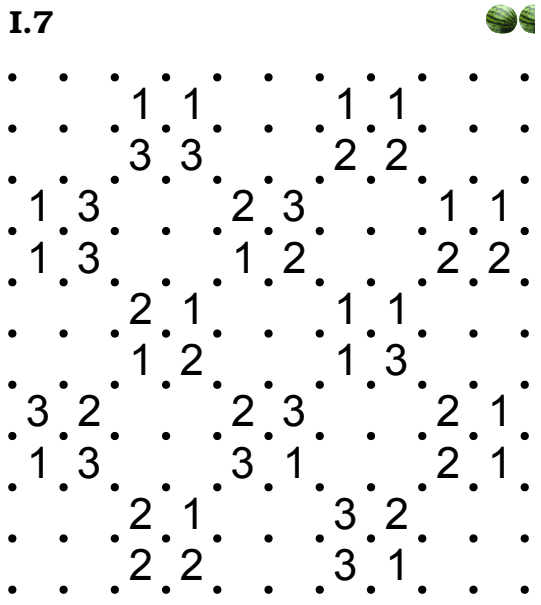
I.5



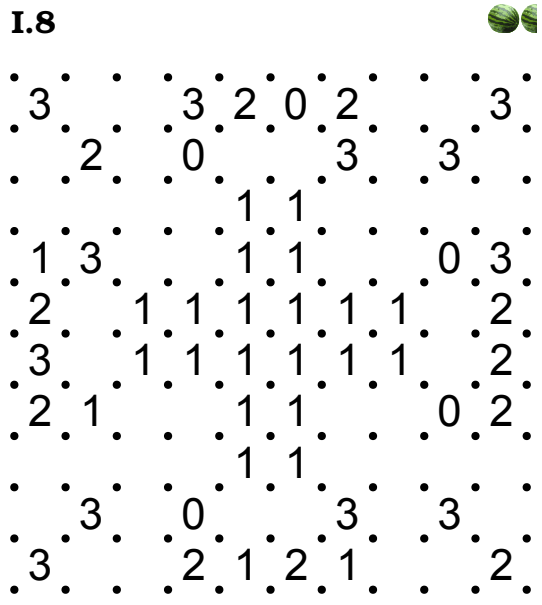
I.6



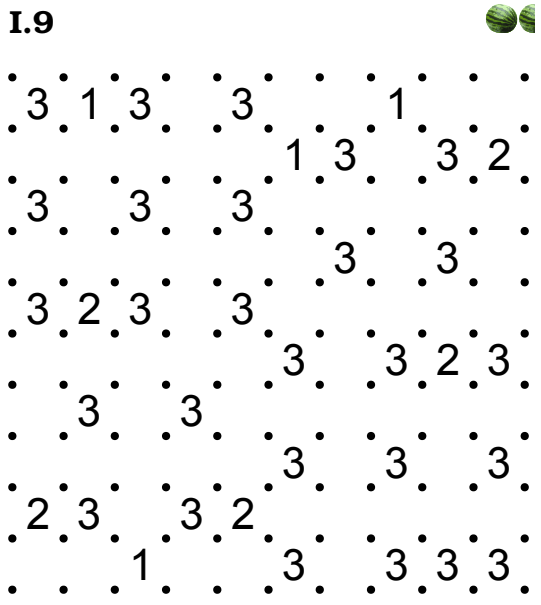
I.7



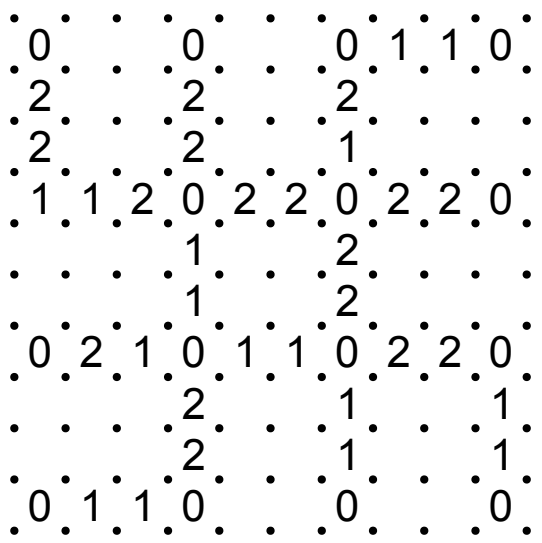
I.8



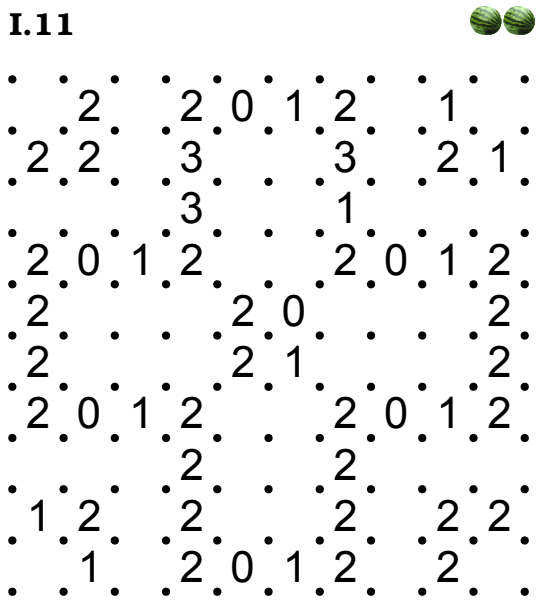
I.9



I.10



I.11



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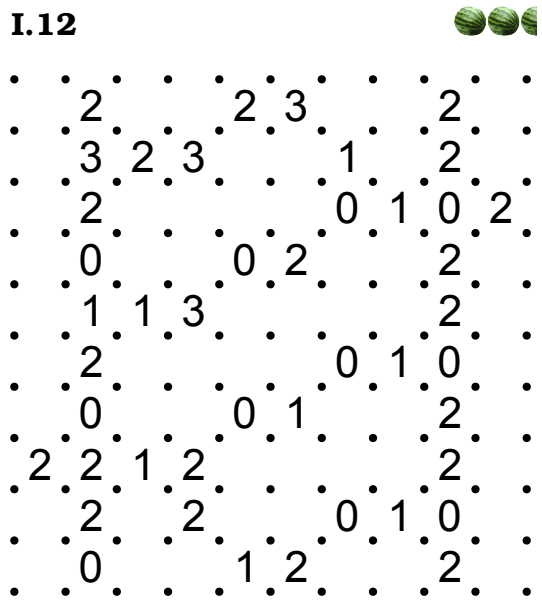
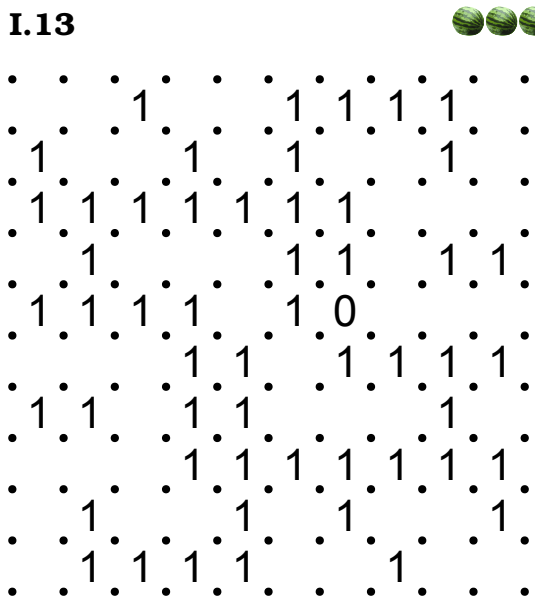
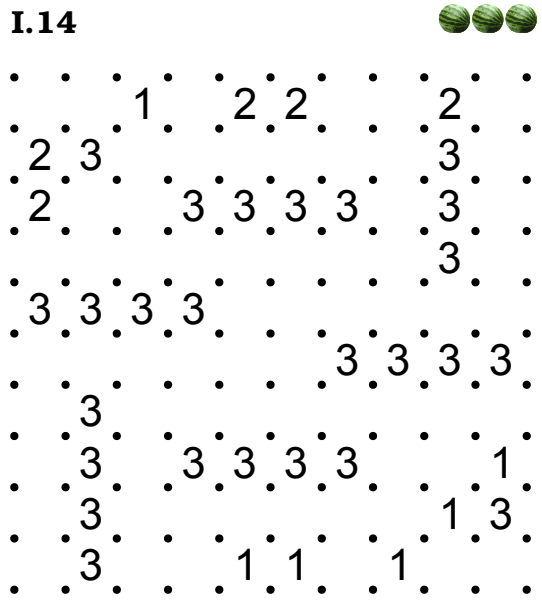


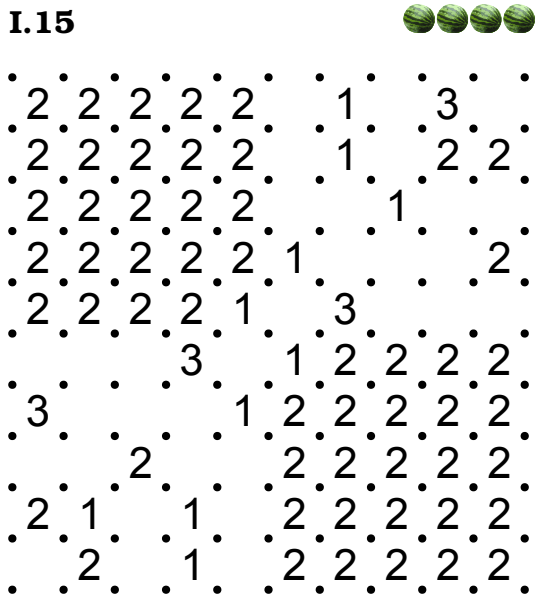
I.13



I.14



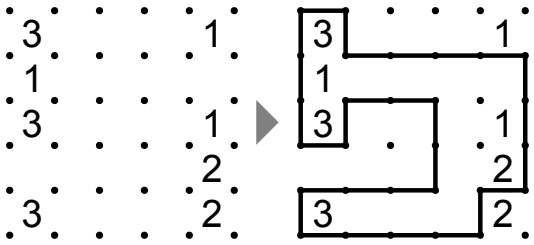
I.15



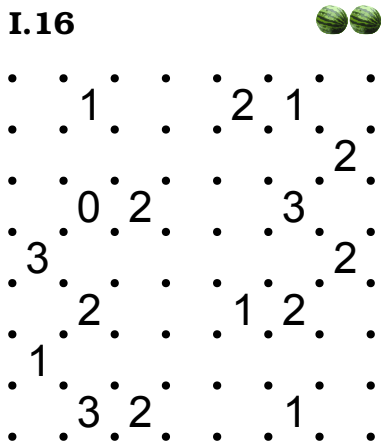
Variation 1: All Threes

In addition to the usual Slitherlink rules, all of the 3s are given to you. That is, no unclued square has three segments of the loop surrounding it.

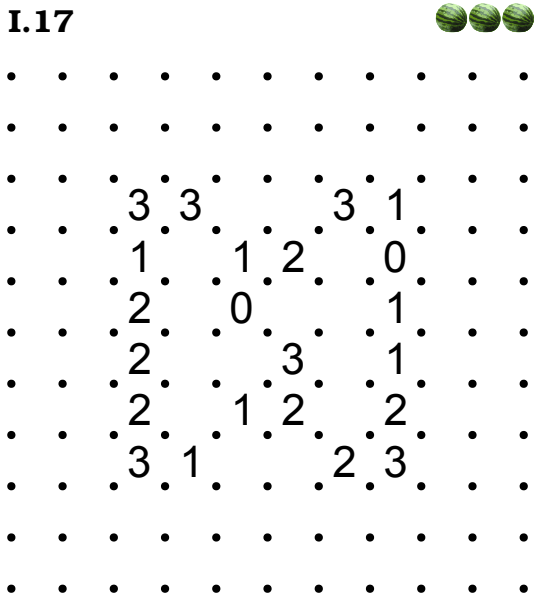
Example



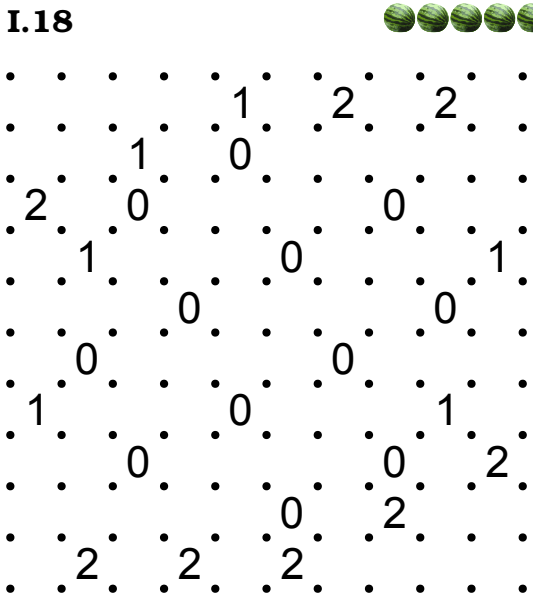
I.16



I.17



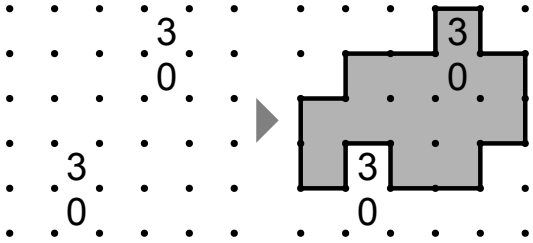
I.18



Variation 2: Interior Path

In addition to the usual Slitherlink rules, you must be able to draw a path through adjacent squares that visits every square inside the loop exactly once. The path starts and ends at two different squares.

Example



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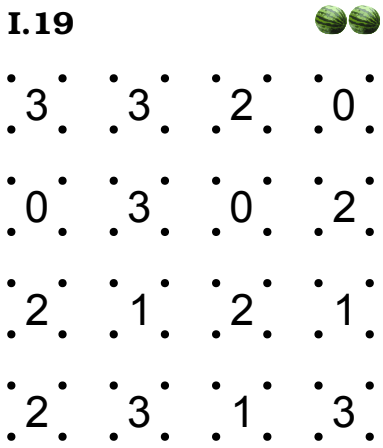
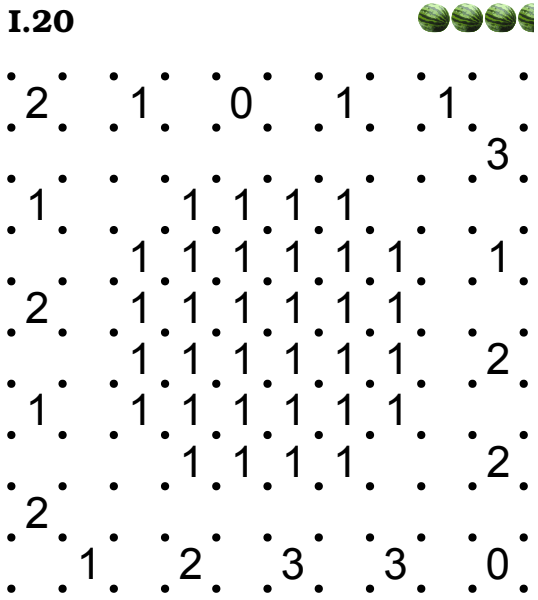
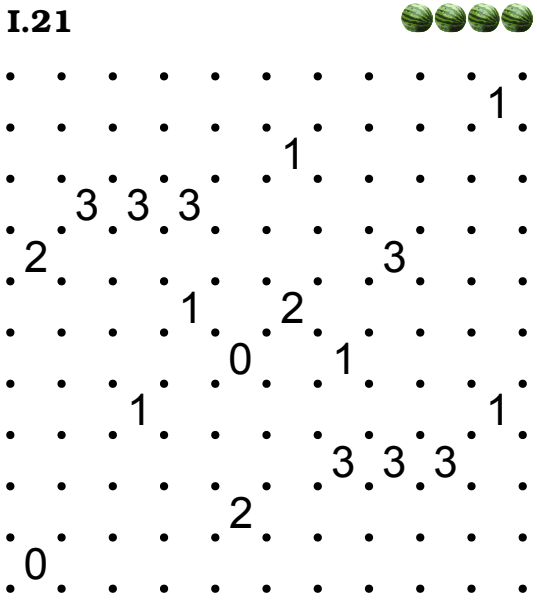


I.20



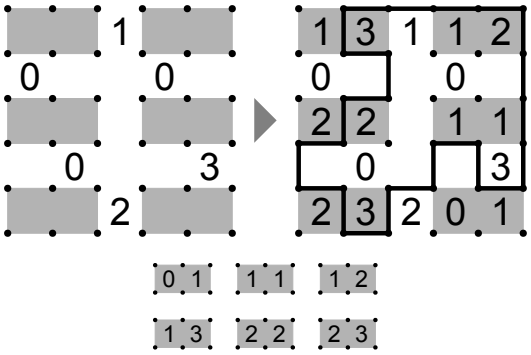
I.21



Variation 3: Domino

Some of the clues have been taken out of the grid as a given set of dominoes. Their original positions are marked with shaded squares. Find the original position of each domino and solve the resulting Slitherlink puzzle.

Example



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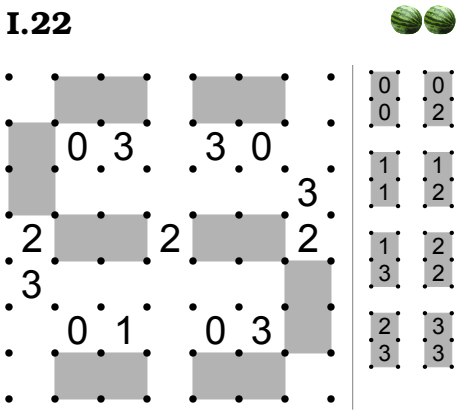
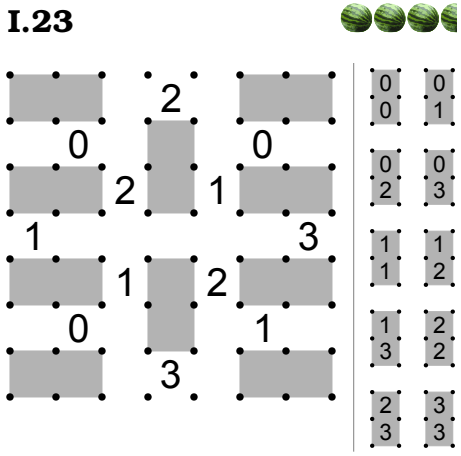
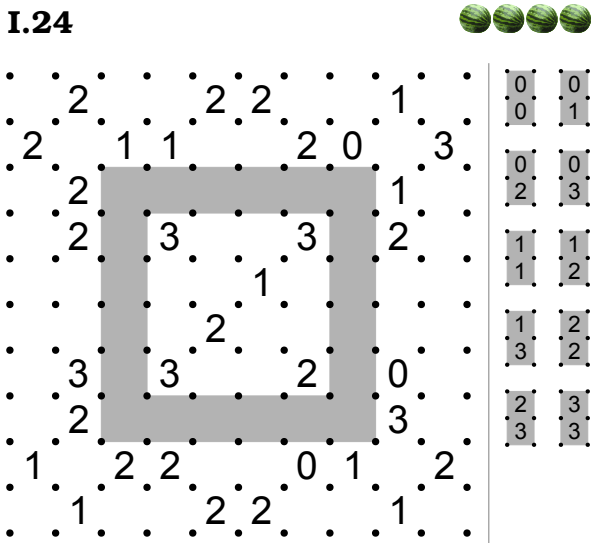


I.23



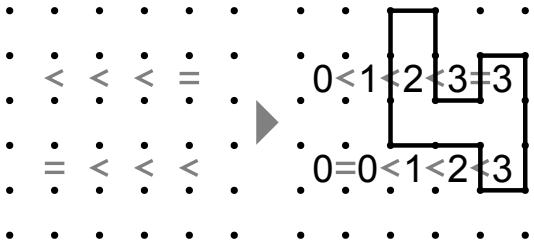
I.24



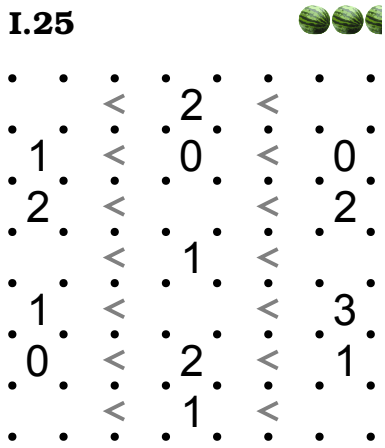
Variation 4: Relation

In addition to the usual Slitherlink rules, some equality and inequality signs are present between two squares in the grid. The two clues that would be written in these squares must satisfy the given relationship.

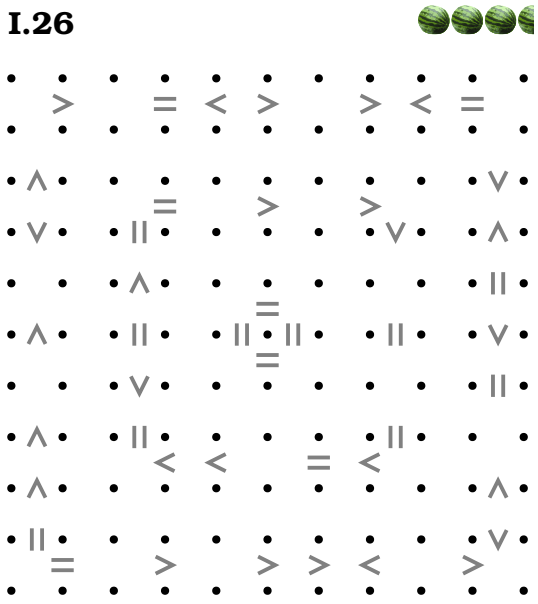
Example



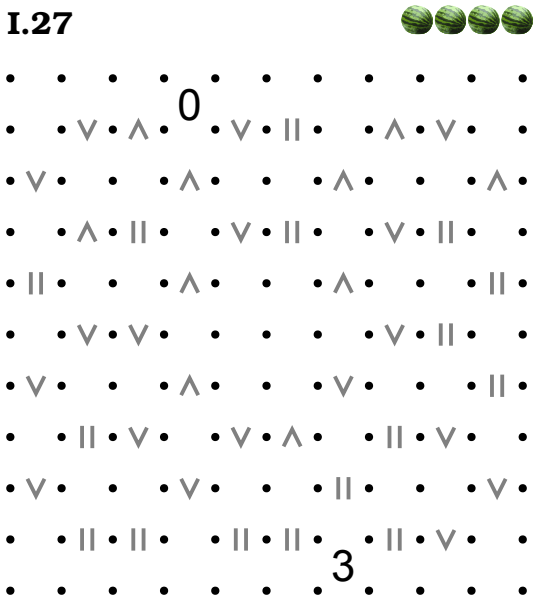
I.25



I.26



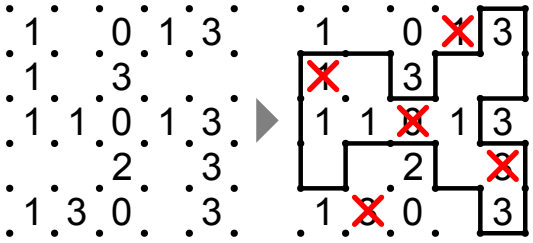
I.27



Variation 5: Liar

In addition to the usual Slitherlink rules, exactly one of the given clues in each row and column is false. Which clues are false is up to you to determine.

Example



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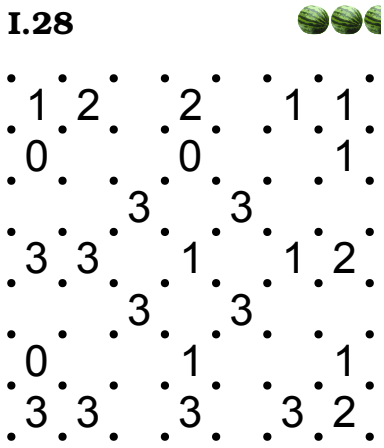

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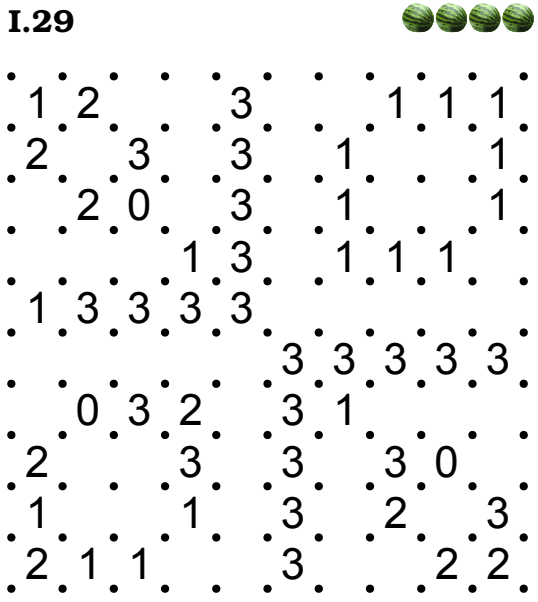

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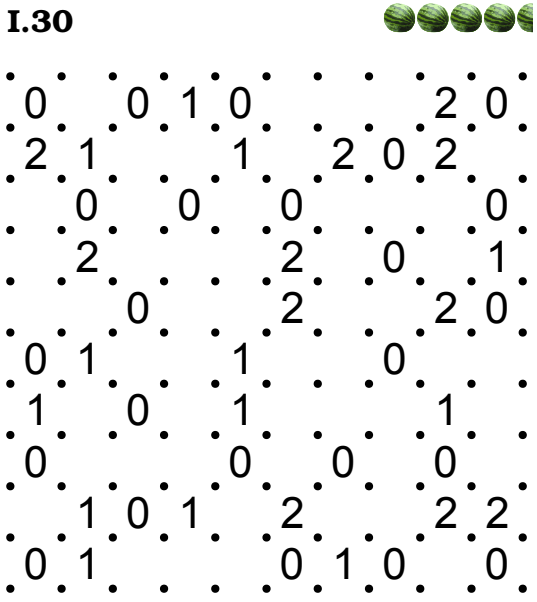


Chimera Slitherlinks

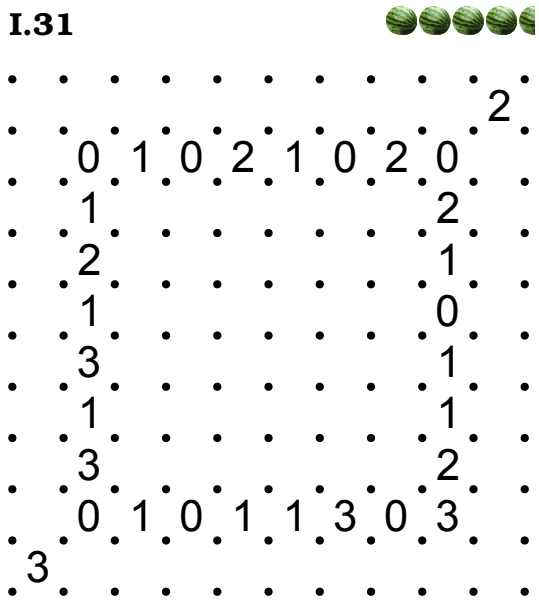
The next three puzzles combine two sets of rules from the variations section.

I.31 (Liar + All Threes): Each row and column has exactly one false square. A square is false if it has an incorrect clue *or if it is unclued and has 3 segments of the loop surrounding it.*

I.32 (Relation + Domino): Place the given dominoes in the grid and solve the resulting Relation Slitherlink puzzle.

I.33 (Liar + Interior Path): Each row and column has exactly one false clue, and there must exist a path traversing each square inside the loop exactly once.

I.31



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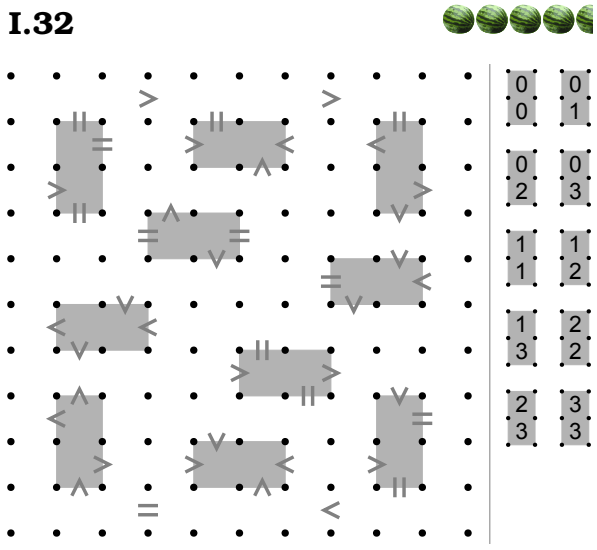
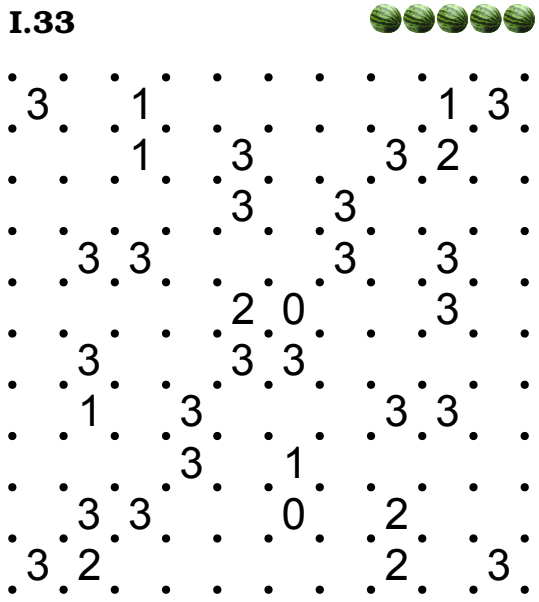


I.33



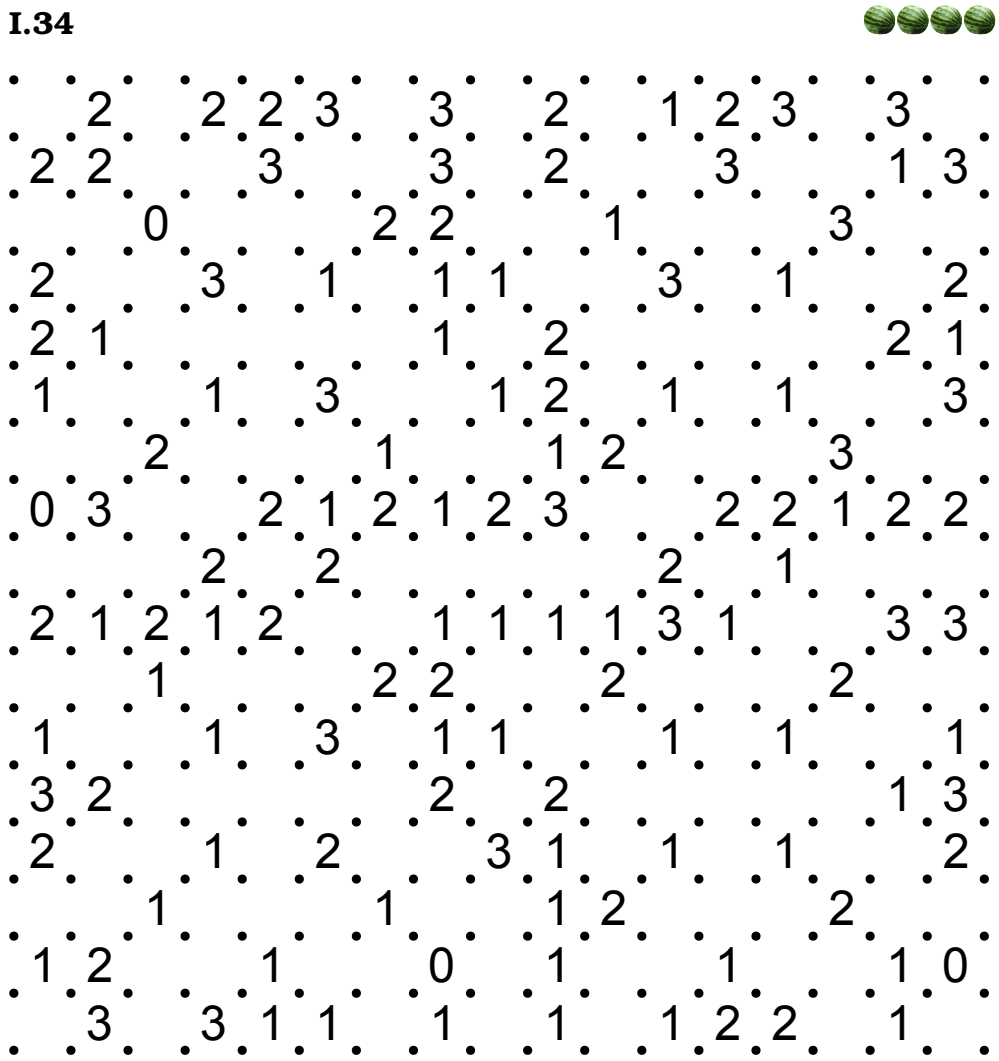
Larger Slitherlinks

The next two puzzles are of larger size than past puzzles.

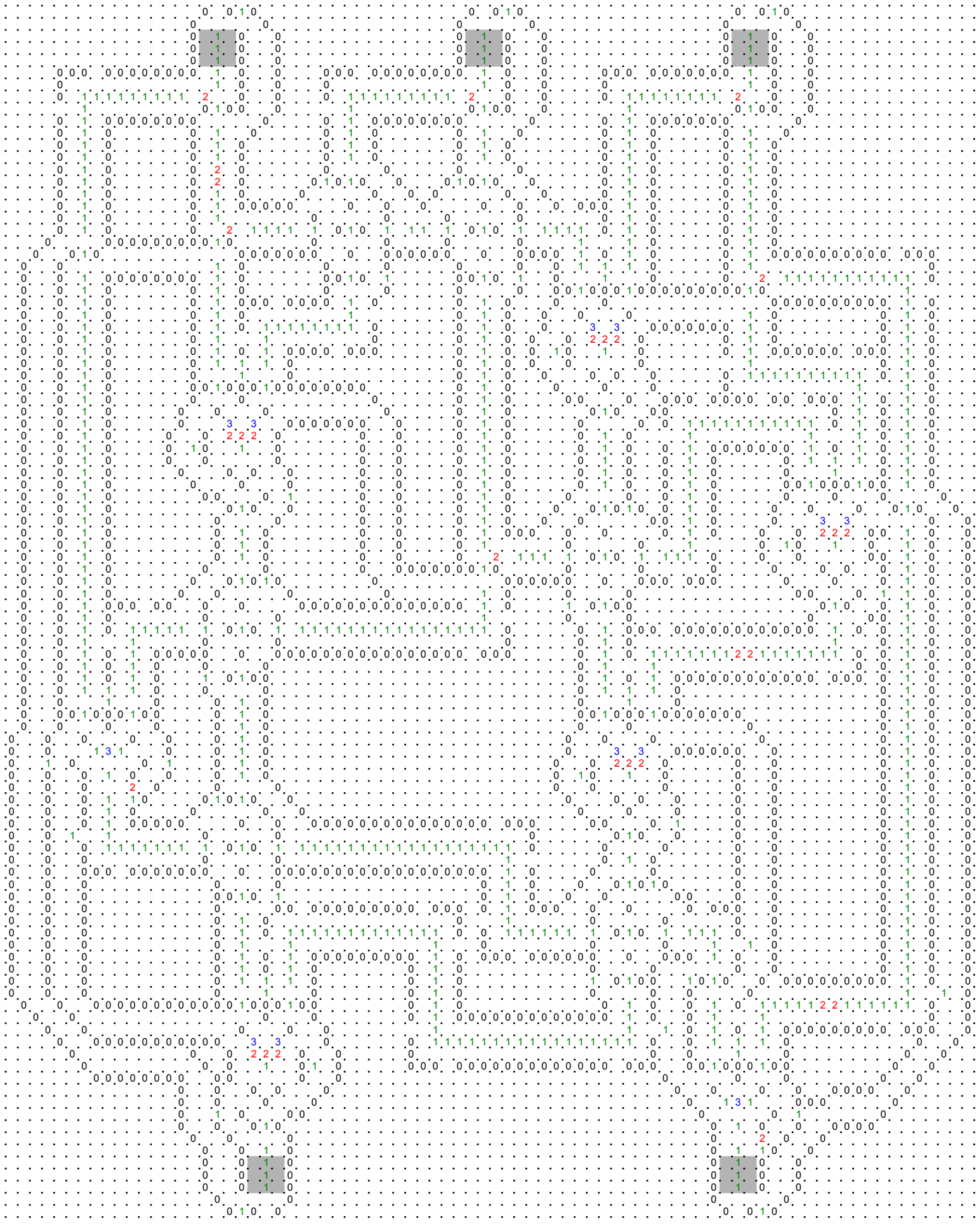
I.34: This is a Classic Slitherlink.

I.35 (next page): Follow Classic Slitherlink rules. This puzzle has 8 solutions; you must find all of them. To make things easier on you, you may consider a solution determined when you know what it does in the five shaded areas. The clue colors have no bearing on the rules.

I.34



I.35



Hints

I.1: What can be said about a 3 that is adjacent to a second 3 and touches a third 3 diagonally?

I.2: Be sure to mark Xs around 0s and any other clues that you have all the segments for.

I.3: You should be able to determine the segments around every 2 on the main diagonals very early on.

I.4: You need to avoid closing the loop several times in this puzzle. Start in the top left and work clockwise.

I.5: If you remember the pattern about 1s in corners, this should be a simple solve.

I.6: You can determine the segments around every nonzero clue from the beginning. Solving the rest requires you to avoid dead-ends and closing the loop.

I.7: Keep in mind the patterns about 3s and cornered 2s.

I.8: The only way to satisfy the 1s in the center is to cut straight through them.

I.9: Use the 313 in the top left to start. Remember that if two ends of a path touch the same 3, they will link up immediately. Make sure you don't close any loops too early.

I.10: Every region in a Slitherlink puzzle with part of the loop needs at least two entrances/exits.

I.11: How many ways can you find to satisfy the 2s in the middle of the first column?

I.12: There is plenty of loop closing logic in the right half of the puzzle, even if you don't have all the lines.

I.13: Have you developed any rules about diagonal chains of clues? Remember a dot has either 2 segments or 0.

I.14: If you have an even number of adjacent 3s, the two ends of the zigzag will be on opposite sides. You can use this fact to force something on the lower left.

I.15: It may help to mark squares you know are inside or outside the loop in the fields of 2s. Also, what happens if any dot surrounded by 2s is unused by the loop?

I.16: Start by considering the bottom left corner. When you finish that area up, be prepared to use the new rule several consecutive times.

I.17: Focus on the top at first. Then repeatedly use loop-closing logic to work counterclockwise about the center.

I.18: Figure out whether each of R2C5 and R9C6 are inside or outside the loop. Knowing both will either force or prevent some segments in the center.

I.19: How many 3s can be inside the loop in any Interior Path puzzle?

I.20: You can determine whether a lot of 1s in the center are inside or outside the loop very early on.

I.21: If you have a choke point of width one inside the loop, all interior squares on each end must be visited before going through that choke point.

I.22: Make sure not to draw any segments that would result in two dominoes being the same.

I.23: Ask yourself where the 03 can go. Later, ask the same thing about the 33.

I.24: No Slitherlink puzzle can have three 3s in an L-triomino pattern. Also, there are two configurations for the positions of the 10 dominoes; once you find one domino, you know which configuration it is.

I.25: The top right and bottom right inequalities are not easily satisfied.

I.26: Make as much use as you can of two greater-than or less-than signs in a chain. Often the high end can't be a 3 or the low end can't be a 0.

I.27: The top center is the starting point. Remember that for the purposes of satisfying a relation, having a segment on the relation is inconsequential. Only the other three segments of each square matter.

I.28: The four corner configurations are all impossible in normal Slitherlink.

I.29: What happens if either of the two 3s in the center are false? Also recall that an L-triomino of 3s is not possible in Slitherlink.

I.30: If you have three 0s in a triangle configuration, what is the clue in the center allowed to be?

I.31: There are several patterns in this puzzle that force 3 segments around nearby squares. Also, for some rows and columns it's hard to fit a liar in at all.

I.32: Start by looking for the 03, 00, and 33, in that order.

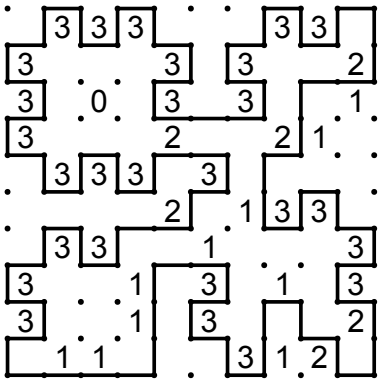
I.33: How many 3s can be inside the loop in Interior Path? What can be said about a pair of adjacent 3s if they were both true?

I.34: You can continue a diagonal parity chain through an unclued space if you have the two perpendicular ends.

I.35: This is a logic circuit in disguise. The 3 shaded areas on top are inputs, and the 2 on bottom are outputs.

Solutions

I.1



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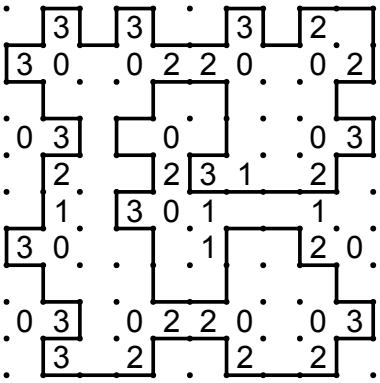

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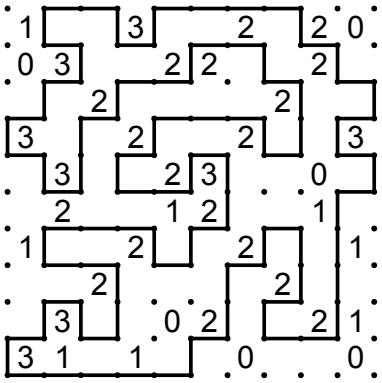

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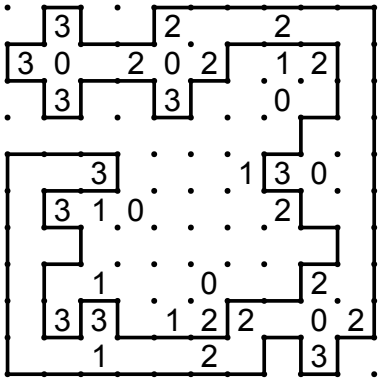

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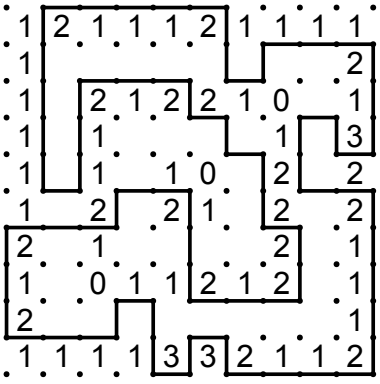

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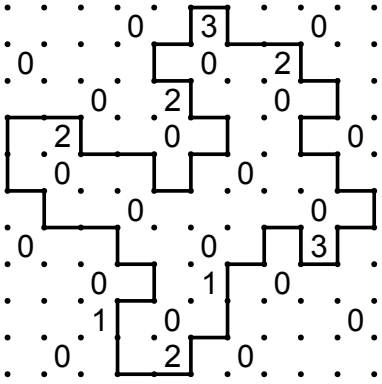

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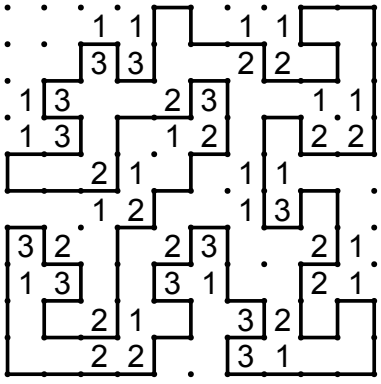

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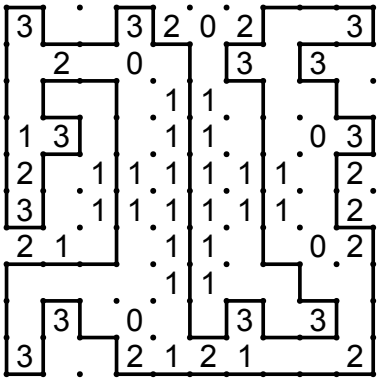

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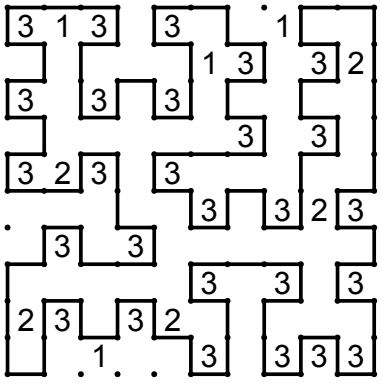

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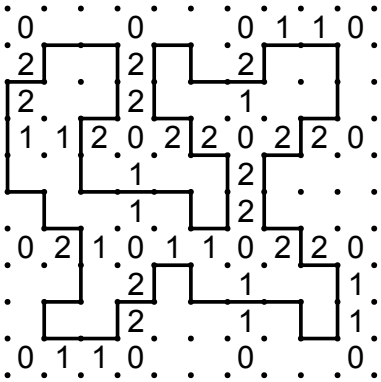

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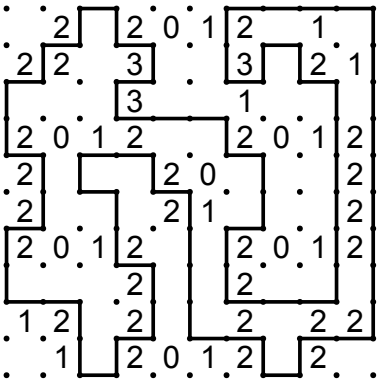

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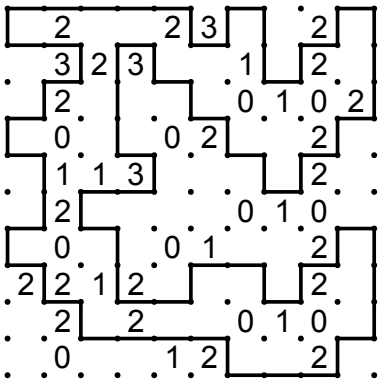

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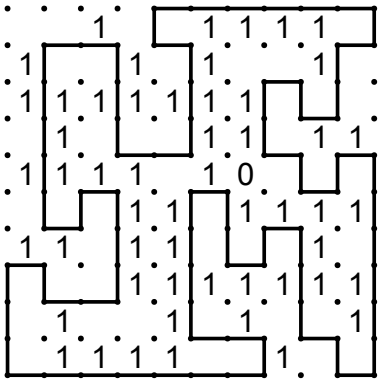

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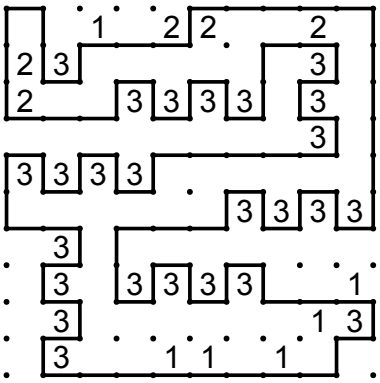

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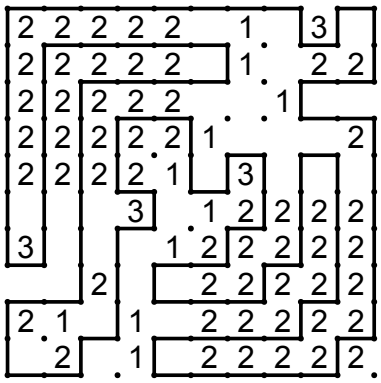

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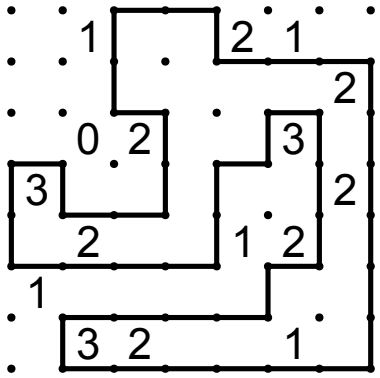

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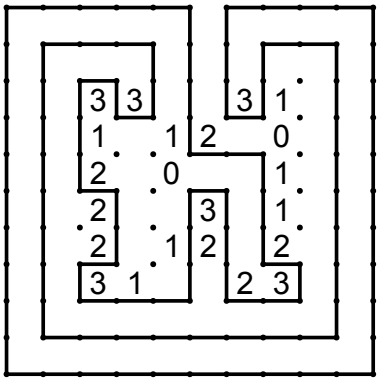

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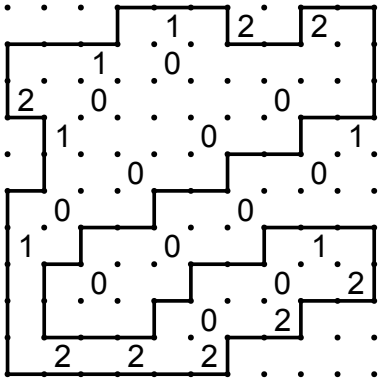

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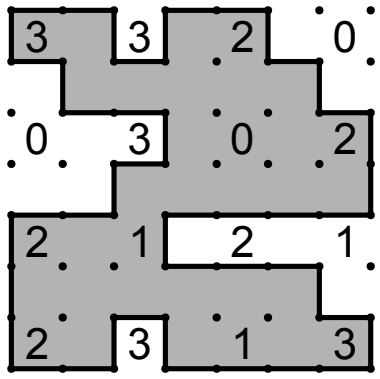
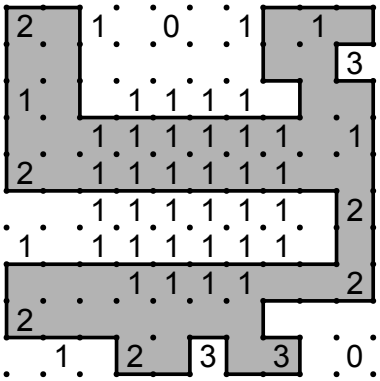


I.20



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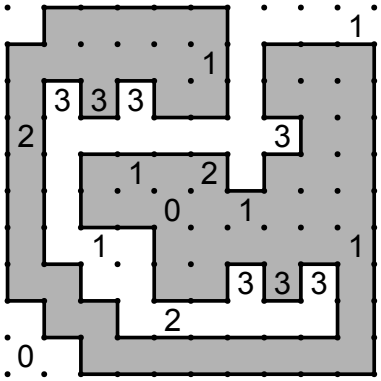

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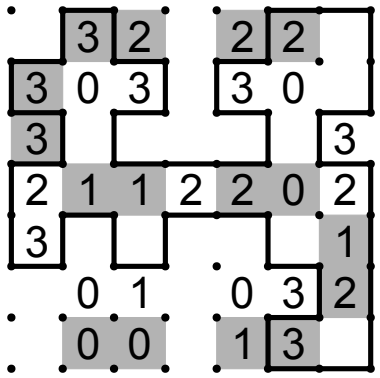

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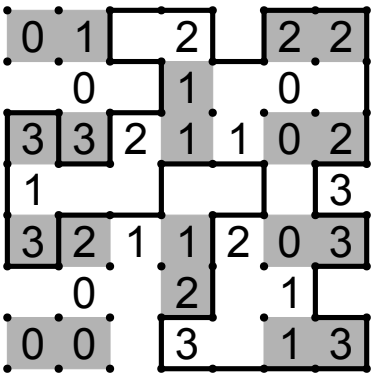

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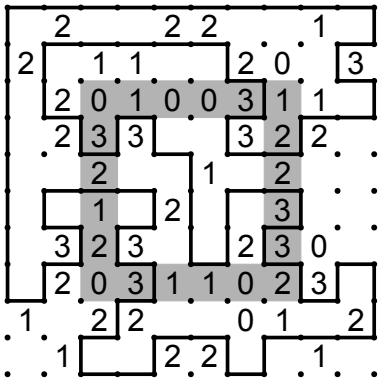

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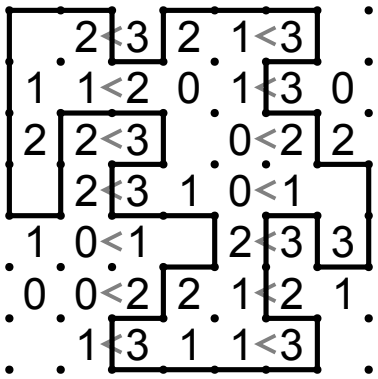

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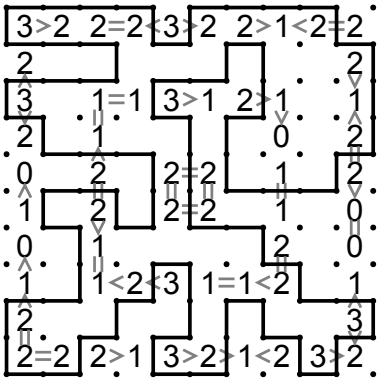

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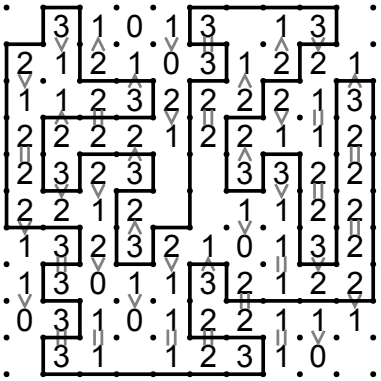

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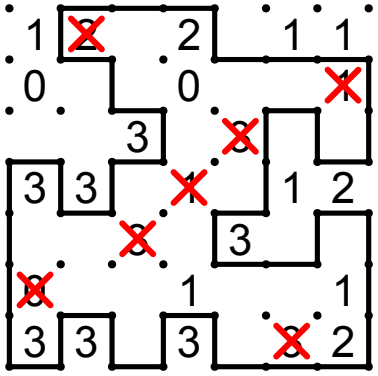

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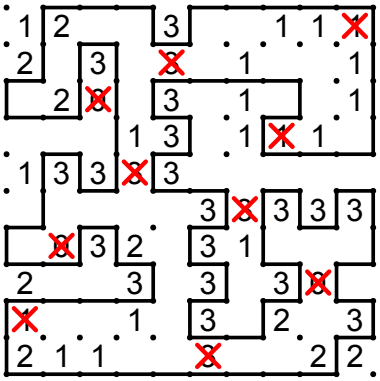

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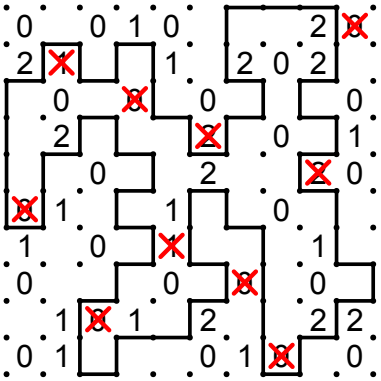

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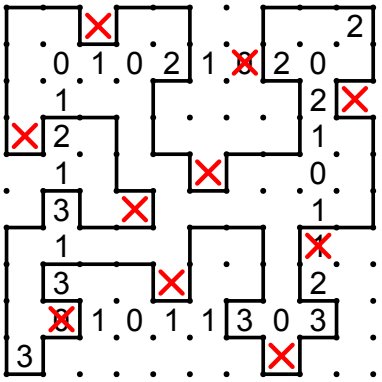

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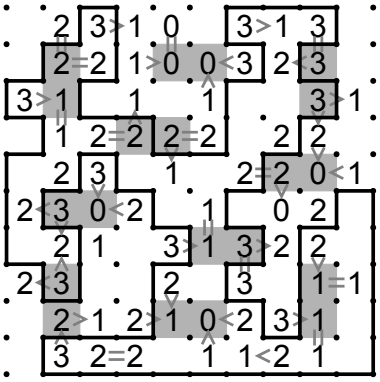

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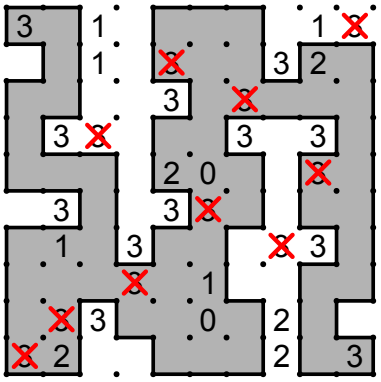

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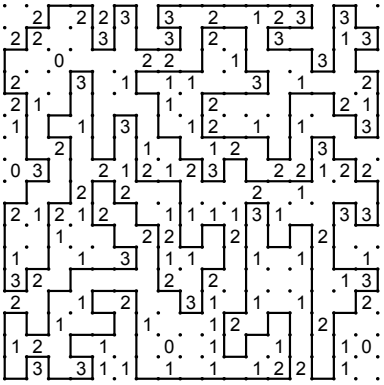

I.35

The loop goes either to the left or to the right of the 1s in each shaded area. Reading the two rows across, the eight solutions are

LLL;LL RLL;LR LRL;LR RRL;RL
LLR;LR RLR;RL LRR;RL RRR;RR