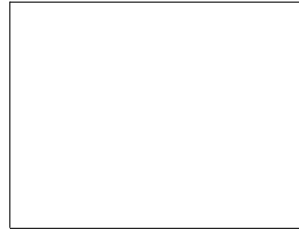
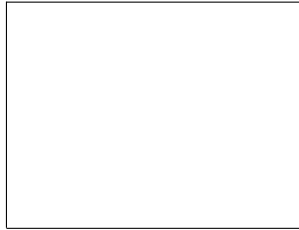


Part 4 – Long-distance running – 110 minutes

1.	Rolling Block Maze	30
2.	Magnets	50
3.	Diagonal Easy as DEBRECEN	50
4.	Kakuro	50
5.	Blackout Dominos	80
6.	Star Battle Sudoku	100
7.	Skyscrapers and Ring Road	200

Total: 560 points + time bonus (5 pts/minute)





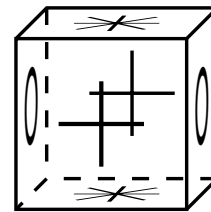
1. Rolling Block Maze

(30 points)

A die carries on each of its faces one of the symbols *, +, o, so that opposite faces carry the same symbol (see figure). The die is initially on the upper-left-most square of the grid, with the face in contact with the grid carrying the symbol *. It then rolls from square to square in the 4 directions, each time rotating 90 degrees about one of its edges until a new face is in contact with the grid. At each step, the face in contact with the grid must carry the same symbol as the square of the grid it occupies.

Find the shortest path to the lower-right corner of the grid.

⊛	○	○	+	*	○	*	*	+	*
○	+	*	+	+	+	+	○	*	○
○	*	○	○	*	*	○	*	○	*
+	*	*	○	*	○	*	○	+	*
○	○	+	○	*	+	*	○	*	+
*	+	*	+	+	○	+	*	○	*
○	*	○	+	○	+	*	+	+	○
*	+	○	*	+	+	*	○	+	*
*	○	○	+	*	○	○	+	○	+
+	○	*	+	*	+	+	○	+	⊛

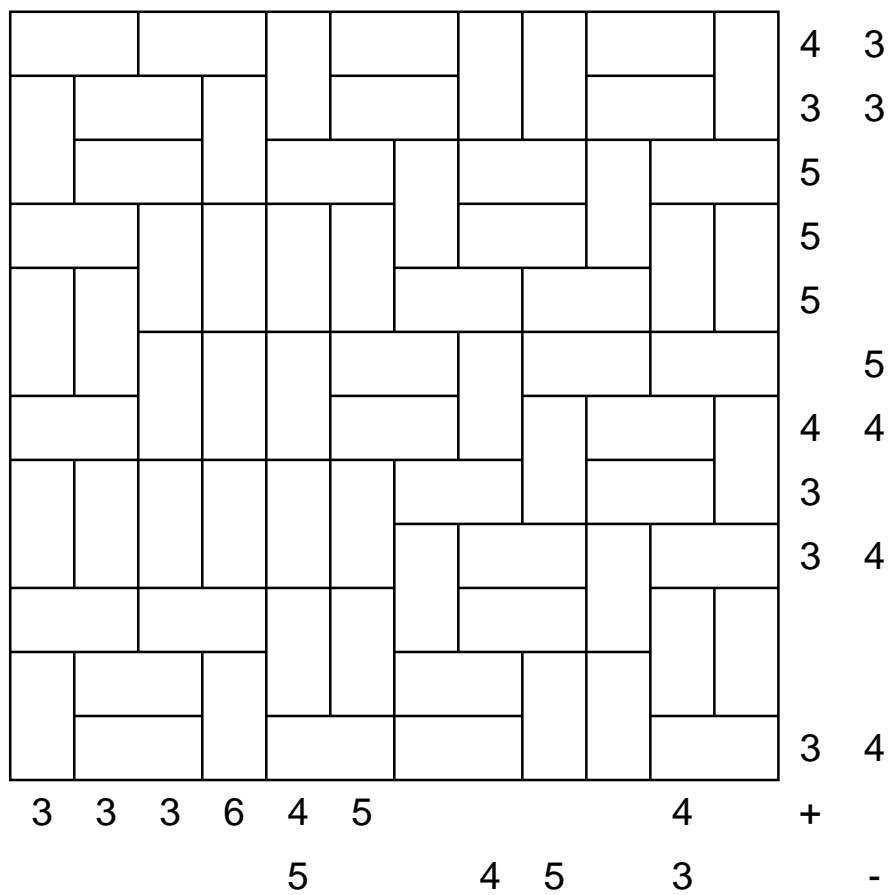


2. Magnets

(50 points)

The grid is made up of magnetic and non-magnetic plates. Each magnetic plate has two halves: one positive (+) and one negative (-). Halves with the same symbol can not be horizontally or vertically adjacent. The numbers outside the grid indicate how many magnetic halves of each kind can be found in that row or column. Some clues have been erased.

Find the polarity of all magnets.



3. Diagonal Easy as DEBRECEN

(50 points)

Enter at most one letter per cell so that every row, column, and main diagonal contains exactly the letters of the word DEBRECEN. The clues around the grid indicate the first letter encountered in the corresponding row or column. A black cell cannot contain a letter; a cell marked _ must contain a letter.

	D	E	B	R	E	D	C	N	E		
E											E
D						E					E
R						_					D
E			N								D
B					E						R
N					C						E
E											C
C											B
E											N
	E	B	D	N	E	R	E	C	N		

Part 4

4. Kakuro

(50 points)

Enter a single digit from 1 to 9 into each empty square of the grid, so that the digits in each series of white squares add up to the number given in the gray-colored cell at the top or to the left. A number above a diagonal bar refers to the digits to be filled in to the right of that cell. A number under a diagonal refers to the digits to be filled in below that cell. The digit 0 is not used, and no digit is ever repeated within a group.

		45	14	30		28	15	45	
	17 22				9 12				17
45									
7			8 22				9 25		
20					21 10				
	40 9								21
18						11 10			
21				20 8					
45									
	21				21				

5. Blackout Dominos

(80 points)

A domino set consisting of the 45 dominos from 1-1 to 9-9 has been placed into the grid, without overlapping. The borders of the dominos have been erased, and additional digits have been written in the unused cells.

Blacken the unused cells, and reconstruct the missing lines so that each domino can be found exactly once in the diagram. Black cells cannot touch each other by a side.

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

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

7. Skyscrapers and Ring Road

(200 points)

Each row and column of the grid contains 7 skyscrapers of different heights (from 1 to 7). The numbers outside the grid indicate how many skyscrapers are visible from that direction (a building located behind a taller one in the same row is completely hidden).

The cells which do not contain a skyscraper are part of a closed loop made of horizontal and vertical segments linking the centers of adjacent cells. The loop passes through every cell which does not contain a skyscraper, without crossing or overlapping itself.

Find the loop and the heights of the skyscrapers.

- **Partial points:** 100 points for the correctly drawn loop.
- **Hint:** you may request a hint to solve this puzzle, namely the position of all the skyscrapers with height 7. Once the hint has been requested, the problem is worth only 60 points, and there are no partial points for the loop anymore; you are also no longer eligible for a time bonus for this round.

