

11th World Sudoku Puzzle Championship
25th
Senec - Slovak Republic / 16. 10. - 23. 10. 2016

Name: _____
Team: _____
Number: _____

WPC Round 7 – 30 minutes

OUTSIDE THE BOX

1. Digital Scale	15 points
2. Digital Scale	38 points
3. Matching Pairs	15 points
4. Matching Pairs	15 points
5. Matching Pairs	34 points
6. Maze View	5 points
7. Maze View	5 points
8. Maze View	5 points
9. Moving Matches	15 points
10. Two Clocks	20 points
11. Two Clocks	44 points
12. Two Step Maze	12 points
13. Two Step Maze	52 points
14. Wordsearch	30 points
15. Cryptarithm	55 points

TOTAL: 360 points

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POINTS

1. – 2. DIGITAL SCALE (15 + 38 points)

We have some apples, bananas, and cherries. The weight of each piece of fruit is a positive integer. All pieces of fruit of the same type weigh the same. We have weighed some combinations of fruit on a scale with a digital display. The scale always shows the exact weight, but its display is faulty: some segments that should be on remain off. In each puzzle, the faults are consistent between weighings. Determine the weight of each fruit type.

Digits used on the display:

1 apple + 1 banana + 2 cherries =

1 apple + 2 bananas =

3 apples =

Answer:

1 apple	
1 banana	
1 cherry	

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2 apples + 2 bananas =

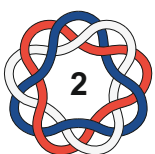
2 apples + 2 cherries =

2 bananas + 1 cherry =

Answer:

1 apple	
1 banana	
1 cherry	

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3. – 5. MATCHING PAIRS (15 + 15 + 34 points)

Find two objects that are identical. (One can be obtained from the other by rotation and translation only.)

Answer:

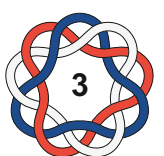
Find two objects that are mirror images. (One can be obtained from the other by flipping it once and then rotation and/or translation.)

Answer:

Find two objects that are complements of each other. In other words, they can be placed one on top of another (using only rotation and translation, no flipping) in such a way that together they form a complete picture – their vertices will coincide and each pair of vertices will be connected by a line in exactly one of the two objects.

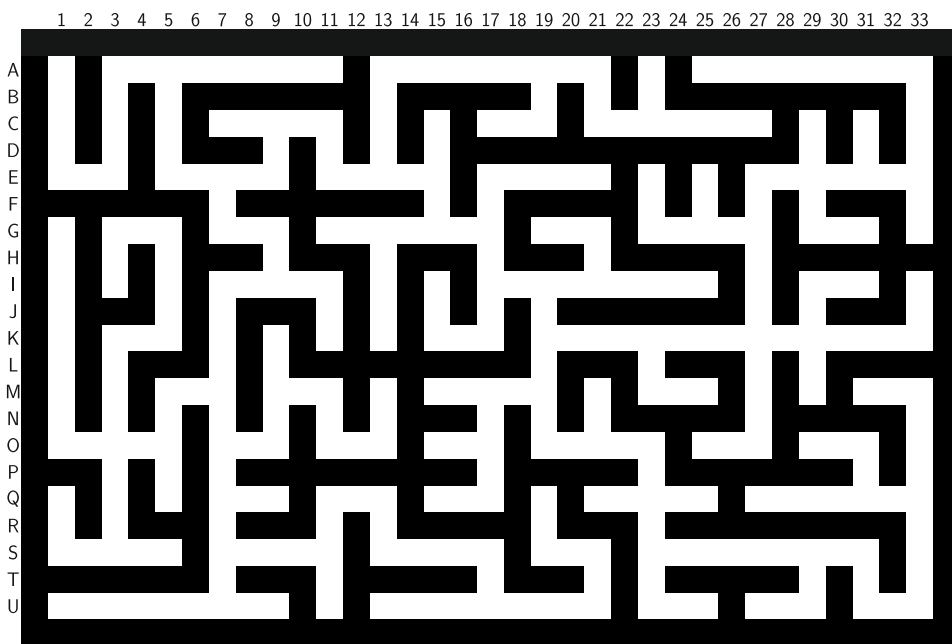
Answer:

	1	2	3	4	5	6	7
A							
B							
C							
D							
E							
F							
G							

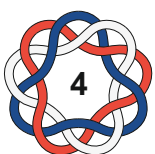
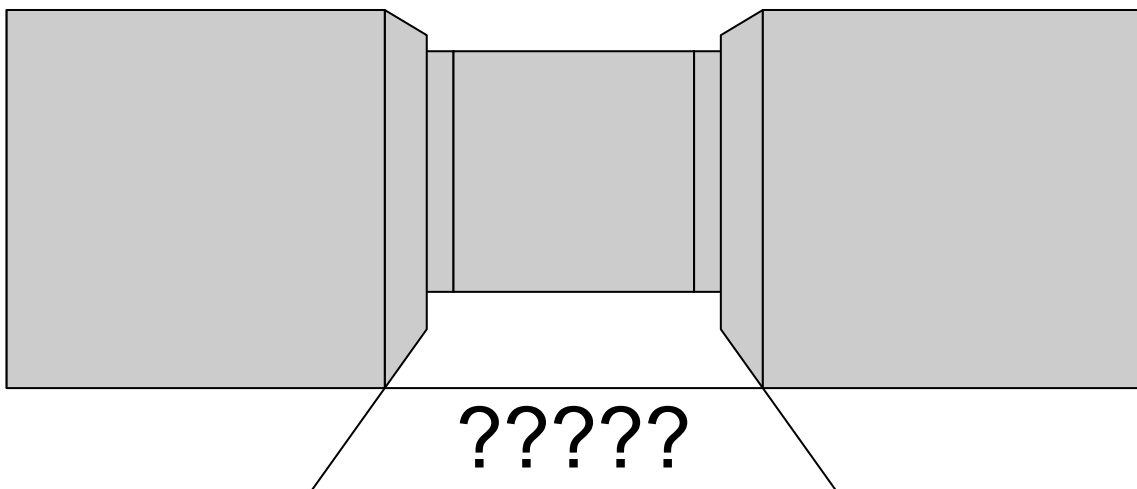


6. – 8. MAZE VIEW (5 + 5 + 5 points)

Below is the map of a maze and a view seen by a person standing in the maze. On the view, one cell is marked with question marks. Find the location of the marked cell on the map. To be awarded the points for the puzzle, the correct coordinates of the positions have to be written into the area allocated for the corresponding view.

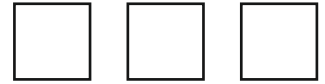
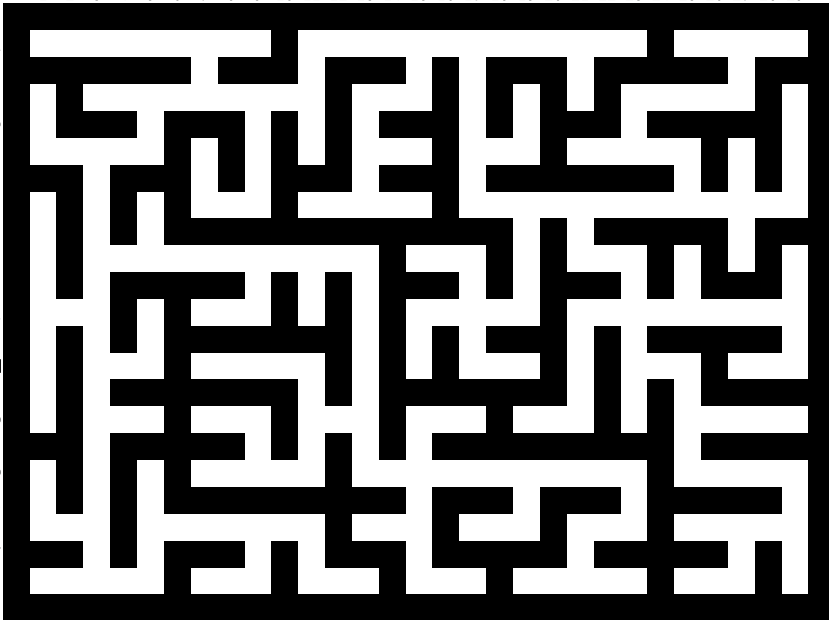


Answer:

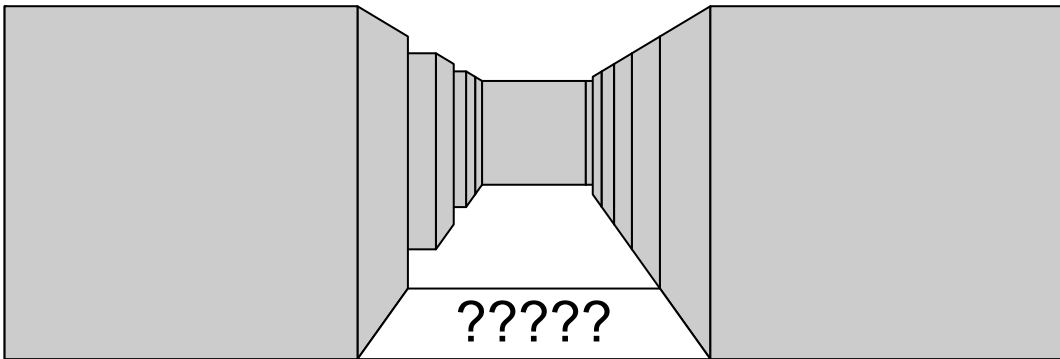


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U

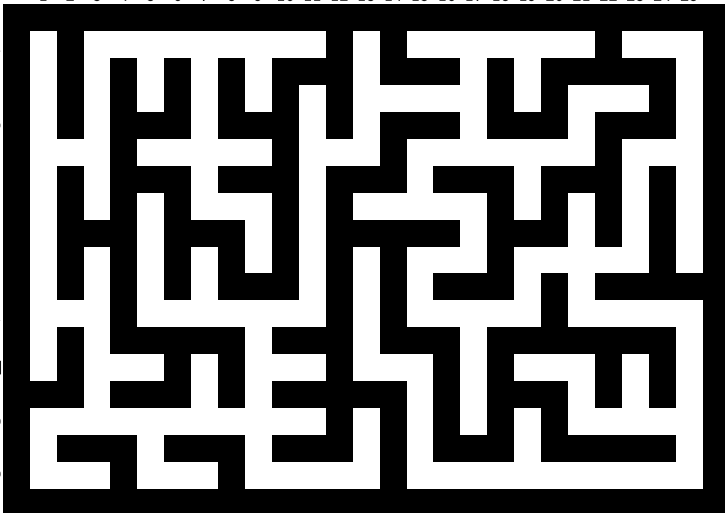


Answer:

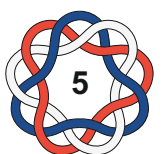
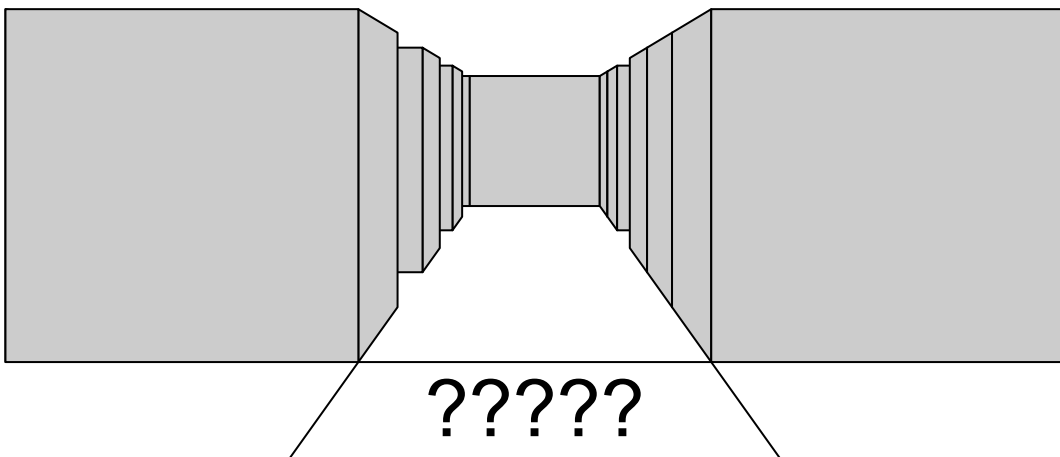


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q

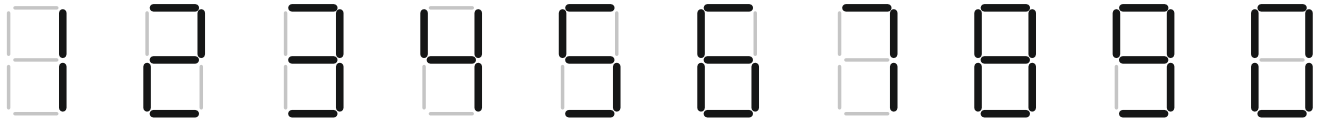


Answer:



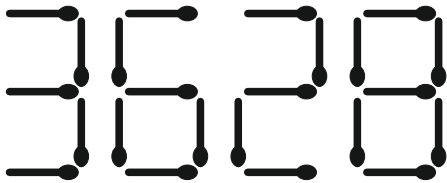
9. MOVING MATCHES (15 points)

The figure below shows the ten decimal digits assembled from matchsticks.



You are given a configuration of matchsticks. Move at most two matchsticks to produce the largest possible positive integer. (The integer must be written in base ten, using only the digits as shown below and nothing else. Rotating the whole configuration / changing the point of view is not allowed.)

Answer:



10. – 11. TWO CLOCKS (20 + 44 points)

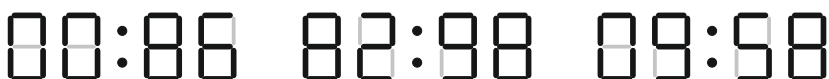
A 24-hour digital display can show any time between 00:00 and 23:59, inclusive.

Two digital clocks have been wired to one such display. Both clocks are going at the same pace but they are set to different times. The display now shows both times, one over another: a segment on the display is lit if at least one of the two displayed times uses that segment.

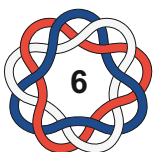
In each puzzle, you have a different pair of clocks. You are given several snapshots of the display, each taken at a different moment in time. Determine the difference between the times shown on the two clocks. (This difference is the same in each snapshot.) As the solution, express the difference in the form HH:MM, with the value being between 00:01 and 12:00, inclusive.



Answer: :

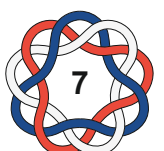
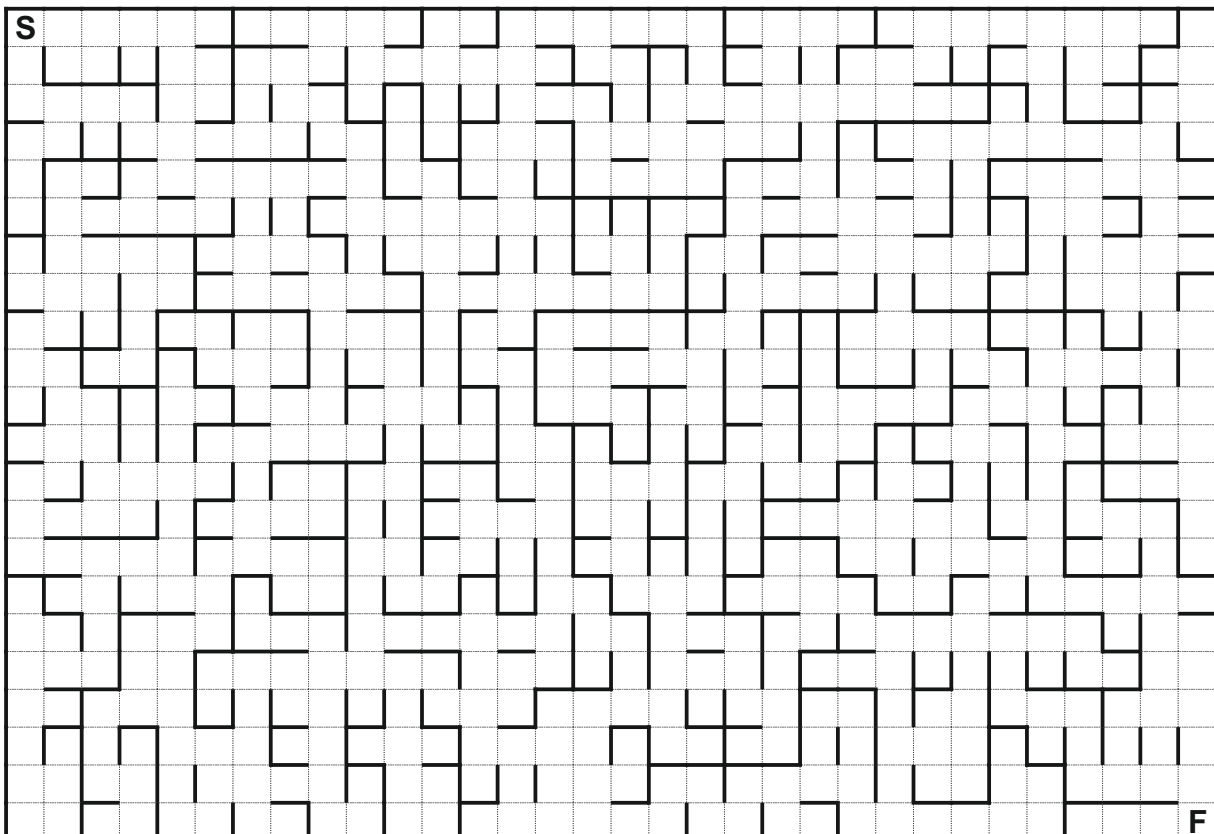
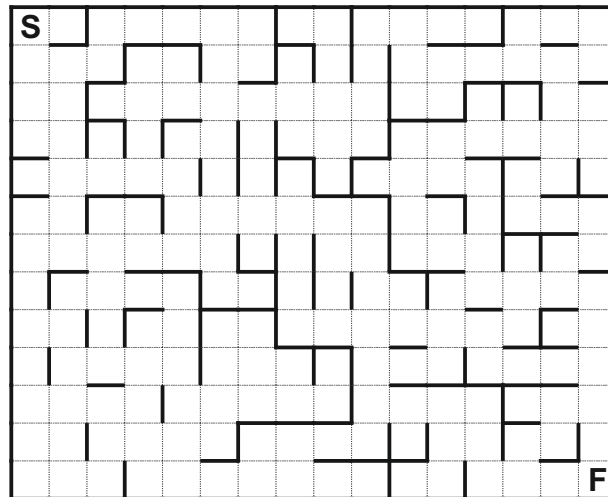


Answer: :



12. – 13. TWO STEP MAZE (12 + 52 points)

Find a way from the cell with S (as Start) to the cell with F (as Finish). The path can only pass vertically or horizontally through the centres of some squares. Along your way, you may not enter any cell twice, and you may never make more than two consecutive steps in the same direction (you may pass straight through 3 cells at most). The way should not pass through the bold borders.



14. WORDSEARCH (10 + 10 + 10 points)

Find the three occurrences of the word SENE in the grid below. You may use any of the given 8 directions. 10 points will be given for each correctly marked word SENE. If more than 3 words are marked, you will earn 0 points.

N	S	E	C	E	C	N	N	C	E	E	C	S	E	S	S	S	N	E	C	S	N	C	E	E	E	C	C	N	E	E	S	C	N	N	C	N	C	C	E		
E	S	E	N	S	N	C	E	C	C	N	S	E	N	E	E	S	E	C	N	N	E	C	N	N	C	C	S	E	N	C	E	N	C	E	C	S	E	E	E		
N	C	C	E	E	S	E	C	S	S	N	C	C	C	E	E	N	S	C	N	C	C	E	N	S	C	E	E	N	E	E	E	E	E	E	E	E	S	E	C	N	C
E	S	N	E	S	S	E	S	N	S	N	S	E	E	C	E	E	E	C	E	C	S	S	E	E	C	N	S	C	E	S	E	S	S	S	N	S	C	N			
E	C	C	E	C	C	N	C	C	S	C	E	N	C	S	S	E	E	N	N	C	E	C	E	S	C	S	E	E	S	E	C	C	S	N	E	C	S	E	N		
N	E	E	S	C	S	E	E	N	C	S	C	E	N	S	N	C	E	E	S	S	C	C	E	C	N	C	N	E	E	S	S	C	N	E	N	C	N	S			
S	C	E	N	S	N	C	S	E	N	N	E	N	E	N	E	N	E	N	S	E	C	E	S	S	E	E	C	E	C	N	N	S	N	S	E	E	N	E	E		
E	C	C	C	N	N	C	S	C	E	C	C	C	E	C	C	E	E	S	E	C	E	C	S	E	E	S	E	E	E	E	C	E	S	C	E	S	C	E	S		
E	E	E	N	S	C	E	S	S	E	E	C	S	C	E	E	E	E	C	S	E	C	C	N	E	E	N	E	S	E	E	N	S	N	E	S	N	S	E	C		
S	C	E	C	E	C	N	N	C	C	S	C	S	N	E	E	E	E	C	E	S	C	E	C	E	C	N	S	N	S	E	C	S	E	E	S	E	C	E	E		
S	S	E	C	E	N	S	E	N	C	E	N	S	N	S	S	E	C	E	N	S	N	E	C	C	C	N	C	C	E	E	E	E	S	E	N	S	C	E			
S	E	C	S	S	N	E	S	N	E	E	E	C	E	C	S	E	E	S	C	E	N	E	E	N	S	S	C	N	S	C	S	N	N	E	C	E	N	N	E		
E	E	C	S	N	C	N	E	S	E	E	N	E	N	S	C	E	E	N	E	S	S	E	E	E	N	C	S	N	C	N	E	S	S	E	N	S	E	E	E		
E	E	E	N	S	S	C	C	S	N	C	E	C	N	E	E	N	E	S	C	E	N	C	N	S	S	S	N	S	C	E	C	C	S	S	C	C	S	E	E		
E	S	N	E	C	N	S	S	N	C	N	S	C	E	E	E	N	S	N	E	N	S	E	E	E	N	S	S	C	C	E	E	C	E	S	S	E	E	E	E		
C	E	E	E	C	E	N	E	S	S	C	E	C	E	S	S	E	S	C	E	C	N	C	C	E	C	E	C	C	S	E	C	C	C	E	E	S	E	N	C		
E	E	E	C	N	E	E	C	E	S	E	E	E	E	N	N	C	N	N	E	E	S	C	C	N	E	E	S	S	C	S	N	N	C	E	S	N	N	E			
C	S	E	E	N	E	N	N	N	E	S	E	E	C	E	N	E	E	C	N	E	C	N	S	E	E	C	E	C	C	C	N	C	E	E	S	N	E	E	E		
C	E	E	E	S	E	N	C	C	S	N	S	E	C	C	E	N	C	E	S	N	C	N	S	E	N	C	E	N	N	C	N	C	S	C	E	N	E	N	S		
E	C	E	N	N	N	S	N	E	S	N	C	E	E	E	S	E	S	C	E	S	E	N	E	E	S	E	E	C	S	C	E	N	N	N	S	S	N				

15. CRYPTARITHM (55 points)

Replace letters by digits to get a valid set of mathematical equations. Different letters correspond to different digits while the same letters correspond to the same digits. Numbers must not start with a zero. The actual puzzle uses all ten digits (0-9). The sample below only uses digits 0-5.

$$\begin{array}{r}
 \\
 \\
 \times \\
 \hline
 S
 \end{array}
 \qquad
 \begin{array}{r}
 \\
 + \\
 + \\
 \hline
 S
 \end{array}$$

Answer:

C	E	K	L	N	O	P	S	V	W

