4th Open Serbian Optimizing Puzzle Championship

3. December - 17. december 2011.

http://puzzleserbia.com/

ABDCBADCDACAABADBDDCDBBCBCAC

SECOND WEEK

(11.12. - 17.12.)

6. INTERESTING MATHEMATICS

7. JUMP OVER DOMINOES

8. PENTOMINO ON CHESSBOARD

9. FALLING TRIANGLES

10. GRID

Solutions should be sent through a special form available at the following address:
https://docs.google.com/spreadsheet/viewform?hl=sr&formkey=dEFla2hiSkk2NnFxaDZ2dX BRRIEtMWc6MQ#gid=0

The deadline for sending the solution is 16.12. (Saturday) 24:00.

Day after deadline for set, all received solutions will be available. Scoring table will be ready within 48h, and next 48h any complains will be considered - author's decision will be final. After second week, final results will be published and winners declared.
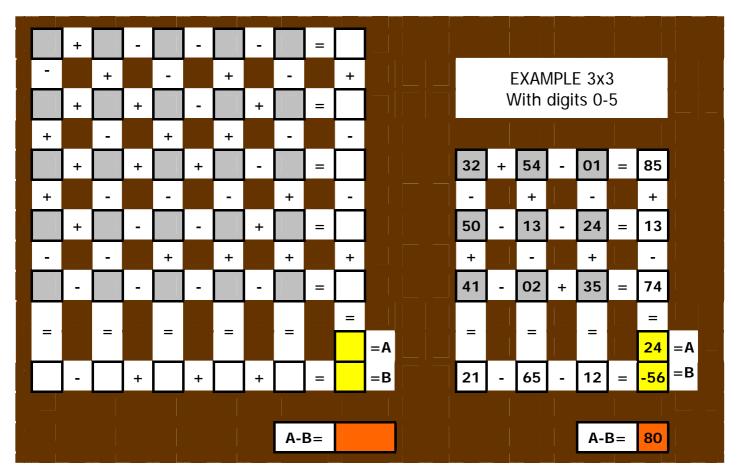
In every puzzle best result gives 25 points, second 21, third 18, and then 16, 14, 12, 10, 9, 8, 7, 6, 5, 4, 3, 2 and 1 point. The winner is the contestant with the most points. If two competitors have same amount of points, one with more solutions with 25 points will get higher rank. If that is same we will look for solutions that gives 21, 18... points. If everything is identical, the solutions receiving time will be considered.

In finding solutions, or parts of the solution, you may not use the suggestion from any side, including computer programs. The programs can be used only to calculate result for your solution. For some puzzles we will provide that kind of programs (Delphi for Windows). Lovers of programming are invited to participate in the subsequent analysis.

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6. INTERESTING MATHEMATICS
(as sudoku)

EXAMPLE 3x3
With digits 0-5

32	+	54	-	01	=	85
-		+		-		+
50	-	13	-	24	=	13
+		-		+		-
41	-	02	+	35	=	74
=		=		=		=
						24 =A
21	-	65	-	12	=	-56 =B

A-B= 80

TASK: Fill the gray fields with two-digit numbers, so that in each row and each column appear all the digits from 0 to 9. In addition, all entered double-digit numbers must be different. Zero can be a first digit in number

SCORING: The results in columns and rows, intermediate in the yellow and the final result in the orange box are determined by specified operations. **Maximize your score.**

SOLUTION FORMAT: First line - your score, next 5 lines - the digits from gray squares in order as been entered (type numbers only, with no signs of operations).

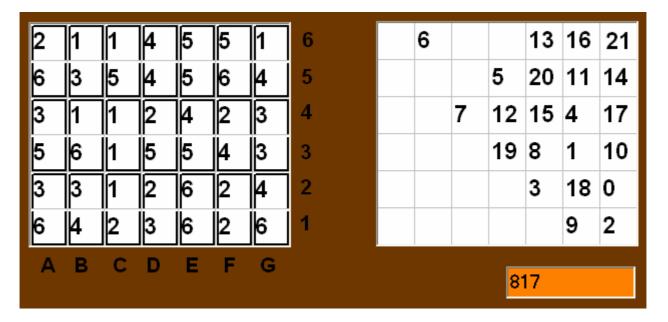For the given example solution should look like this:

80;
325401,
501324,
410235

7. JUMP OVER DOMINOES

Put full set of dominoes (1-6) on 6x7 table so that the dominoes do not overlap. Dominoes can be placed horizontally or vertically. Choose the initial field for knight and jump from field to field according to the rules of chess. In any field knight can jump only once (to be clear, you can not go back to initial field).

Scoring: The number from dominoes (on field you jump) is multiplied by the ordinal move number. The value of the starting field is multiplied by 1, the following value by 2 and so on. The result is the sum of these products. **Maximize your score.**

Example: (The left table give arrangement of dominoes, and right one knight moves).
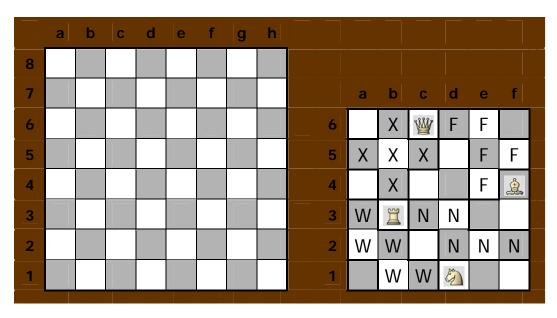

Solution format: First line - your score, next 5 lines - in the next 6 rows dominoe's numbers on table from left to right, top to bottom. With a number that belongs to horisontaly arranged dominoe put H, and U with one that belongs to vertically arranged domino. In the next 6 rows, enter the number of move in which you arrived at the field, from left to right, top to bottom. For fields that have not been visited, type zero. Separate numbers with commas.

For the given example solution should look like this:

817
1u 1u 1u 1u 1u 1u 2u
1u 2u 3u 4u 5u 6u 2u
2u 2u 2u 2u 3u 3u 3u
3u 4u 5u 6u 3u 4u 5u
3u 4u 4u 4u 5u 5u 6u
6u 4u 5u 6u 5u 6u 6u
0,6,0,0,13,16,21
0,0,0,5,20,11,14
0,0,7,12,15,4,17
0,0,0,19,8,1,10
0,0,0,0,3,18,0
0,0,0,0,0,9,2

8. PENTOMINO ON CHESSBOARD

TASK: Draw on the chess board as many different pentominoes as you can. Pentomino can be rotated and mirored, but it must not overlap or touch each other but diagonally. Then, in the not covered fields, put six chess pieces (king, queen, rook, knight and two bishops), so do not touch each other, even diagonally, or attack each other. Bishops must be placed on fields with different colors.
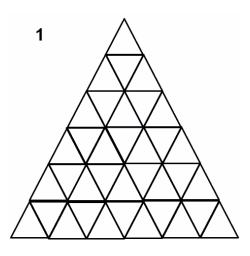A row and a column can be used only by one piece.

SCORING: Each plotted pentomino is worth 5 points, and a value for figure is obtained as a + b + c, where 'a' is the number of sides that figure touches pentomino, 'b' is number of different pentominoes that figure touches by sides and 'c' is number of fields that figure attacks.
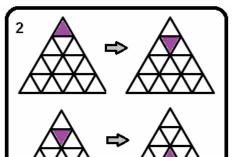
Solution format: First line - your score, next 8 lines - table content row by row, top to bottom. For pentominoes use standard label (F, I, L, N, P, T, U, V, W, X, Y, Z), and for the pieces letters: K (king), Q (Queen), R (rock), H (knights) and B (bishop). For fields left blank use minus sign "-".

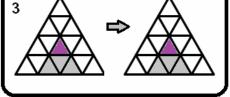For the given example solution should look like this:

73;
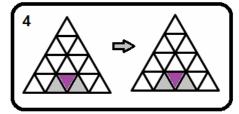-XQFF-,
XXX-FF,
-X--FB,
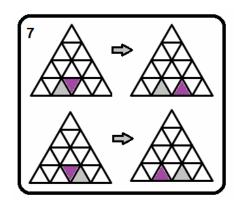WRNN--,
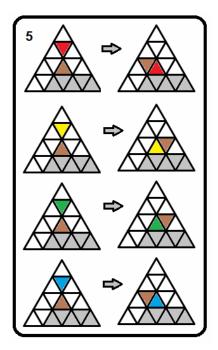WW-NNN,
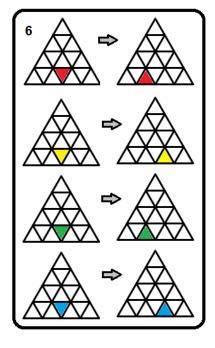-WWH--.

9. FALLING TRIANGLES

1

36 triangles, red (R), yellow (Y), blue (B) and green (G), 9 of each color, fall through the triangular grid given in Figure (1) as follows:
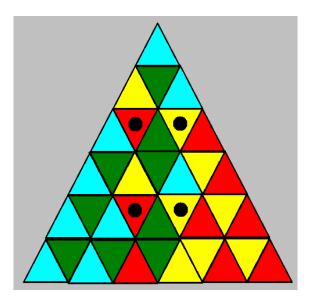
A triangle appears at the top. If the field below is empty, triangle passes to it and continues to fall (2).
Triangle falls until it encounters an obstacle to its lower side (3) or is stuck between the two triangles (4). Then, next triangle appears at top.

When the triangle tip encounters an obstacle:
1. If the obstacle is a triangle where the left and right field next to him are empty, falling triangle takes the place of obstacle. Red and blue shift obstacle left, and the yellow and green are pushing an obstacle to the right. (5) Pushed triangle continues to fall.
2. If conditions given in 1 are not met, then if the left and right field next to drop-down triangle are free - red and green boxes go to the left, yellow and blue go to the right (6)
3. If conditions given in 1 are not met and only one of the fields left or right next to drop-down triangle is empty - a triangle moves to the empty field (7)

2

3

4

7

5

6

Scoring: For each triangle with three triangles touching it by side and where those four triangles are colored diferently (all four colors), you get one point. Determine the order of color drop-down triangles to **maximize your score.**

Example: RYGBRYGBRYGBRYGBRYGBRYGBRYGBRYGB

Solution format: First line - your score, next line - color sequence of triangles.

For the given example solution should look like this:

4
RYGBRYGBRYGBRYGBRYGBRYGBRYGBRYGB
:

10. GRID

	■		■		■		■		■		■		■		■

M | O | S | C | O | W | |
■	E	■		■	A
L	O	N	D	O	N
■	U	■		■	K
D	E	L	H	I		A
■		■		■	R
J | A | K | A | R | T | A |

ANTI	GYURKI	NENAD	SAMUEL
BEARDA	HARMEET	NOVAKOVIC	SARKIJARVI
BIEGLER	HINZ	OBRADOVIC	SEBASTIAN
BIELIKOVA	HORVATH	ODDEST	SERHAT
BJOERN	HRDINA	ODONNELL	SIMANA
BOJANA	HROMCOVA	PARLIC	STOJANOVIC
BOVAN	JORDANOV	PARNITS	STRACENSKI
BUHANEVICH	KAZMERCHUK	PATRICK	SUBRAMANIAN
CERANIC	KLYACHIN	PAVICIC	TAKAHISA
DANIJEL	KRISTIN	RADISAVLJEVIC	TANASIC
DEJAN	LADISLAV	RAKESH	TOKUNAGA
DEMIGER	RUEY	RANKA	TOLOMANOSKI
DORIANA	MACHERLA	ROHAN	TOMASZ
FILSER	MARTON	RAUDE	VIDAN
FRANK	MAURIZIO	RICHTER	ZAFER
FORCOLIN	MILANOVIC	ROBINSON	ZANECHAL
GAVRANOVIC	MILOVAN	SABANCI	ZIVANOVIC
GOLJOVIC	MURTHY	SAHAY	ZOLYNSKI

TASK: The grid should be filed with names and / or last names of the participants of previous competitions given in the list, so that any new one cross with at least one already set. All words must be linked together. Between the words in the same row or same column, there must be at least one blank (at the beginning and end of each word must be either edge, or blank field). LJ should be treated as two characters (L and J).

Scoring: For each used name you get 2 points + the number of letters in it. The field in which the two words intersect makes two additional points.

Solution format: First line - your score, next lines table content row by row, top to bottom. For empty field use minus sign "-" and "#" for black fields.

For the given example solution should look like this:

```
57;
MOSCOW-,
-#E#-#A,
-LONDON,
-#U#-#K,
DELHI-A,
-#-#-#R,
JAKARTA.
```