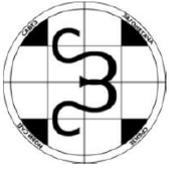
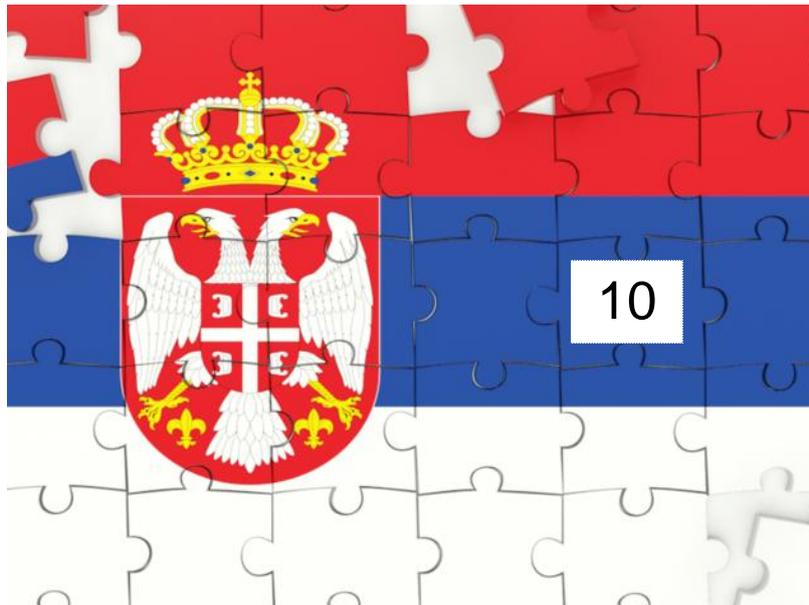
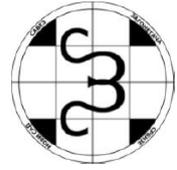


10th SERBIAN OPEN CHAMPIONSHIP IN SOLVING OPTIMIZING PUZZLES



December 8th-17th 2017
<http://puzzleserbia.rs/>



- 1. FALLING LETTERS**
- 2. SIMPLE PENTOMINOES**
- 3. CITIES ON 5x5 GRID**

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BASIC RULES

There are three puzzles. For each puzzle the scoring will be the following:

The best competitor gets 25 points, the second best 20 points, the third best 17, the fourth best 15, then 14, 13, 12, 11, ..., 2, 1. Each subsequent competitor with a correct solution will get 1 point. Incorrect solutions will score 0 points. In case of tie where two or more competitors have the same score they will get the same amount of points according to their place on the standings, however the competitors behind them will have their scores as if no tie happened. For example, if the third, fourth and fifth best competitor have the same score, they will all get 17 points, while the sixth best will still get 13 points.

The maximal possible total score is 75 points.

Please draw or scan your solutions and send them in PDF or JPG formats to **answers@puzzleserbia.rs** till December 17th 2017 10 P.M. CET. Send your solutions together with your info (name, city, country). Make sure to indicate your total score. You may send the solutions as many times as you want, however, only your last solution counts.

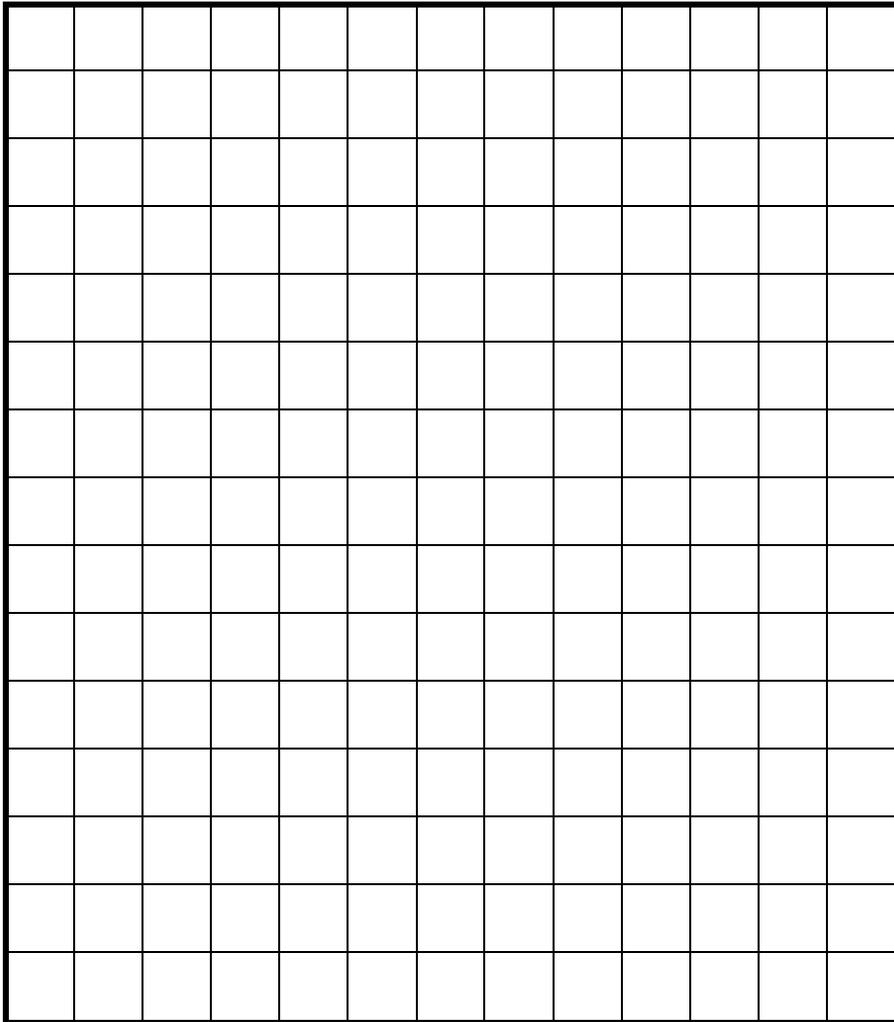
We wish you good luck!

1. FALLING LETTERS

Dedicated to December 11th – International Mountain Day

Place one word from the list from left to right (ignoring spaces between two-word entries) in each row of the grid. Then remove all empty cells. Divide the remaining single shape into regions such that each letter belongs to some region (see example). In each region, reading from left to right and top to bottom, the letters must appear in alphabetical order. It is not allowed to repeat letters within a region.

Scoring: Your score is equal to L-R, where L is the number of letters in the grid, and R is the number of regions. Maximize your score.

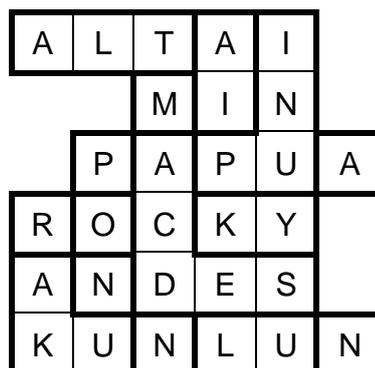


- ALASKA
- ALBORZ
- ALTAI
- ANDES
- ANNAPURNA
- CAUCASUS
- DAXUE
- FRONT
- GISSAR
- HENGDUAN
- HIMALAYAS
- HINDU KUSH
- KAMCHATKA
- KARAKORAM
- KONGUR TAGH
- KUNLUN
- MIN
- MONT BLANC
- PAMIR
- PAPUA
- PENNINE ALPS
- QIONGLAI
- ROCKY
- RUWENZORI
- SAINT ELIAS
- SAN JUAN
- SAWATCH
- SHALULI
- SIERRA NEVADA
- TANGGULA
- TIAN SHAN
- WIND RIVER
- WRANGELL
- YUNNAN
- ZAGROS

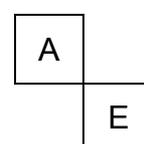
Alphabetical order: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Example (on 6x6 grid):

There are 29 letters and 15 regions. Your score is **14 points**.



Remark: such regions are not allowed

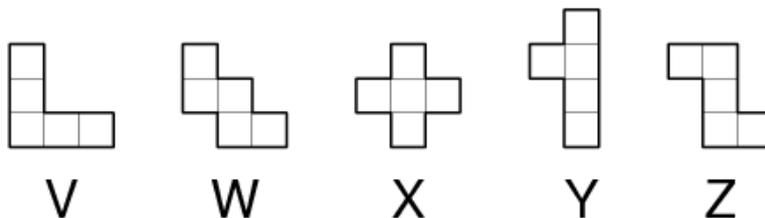
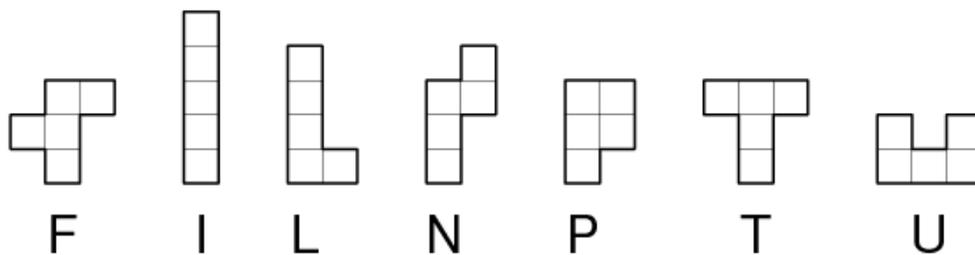


2. SIMPLE PENTOMINOES

Place in the given grid all 12 pentominoes such that they do not touch, not even diagonally. Pentominoes may be rotated or reflected. Each pentomino is used only once.

Goal: Maximize the sum of the numbers in cells covered by pentominoes. If the sum of the numbers covered by a single pentomino is divisible by 12, add to your score 5 more points.

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	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132
133	134	135	136	137	138	139	140	141	142	143	144



3. CITIES ON 5x5 GRID

Part One: Place in the left grid 25 different letters of English alphabet. One letter will remain unused. The list below contains 50 words, five-letter names of cities. Each word can be worth up to 5 points, depending on the following conditions:

- a) All 5 letters of the word are connected (horizontally, vertically or diagonally) – **1 point**,
- b) The word can be read moving through adjacent cells – **2 additional points**,
- c) All five letters are orthogonally connected, forming a pentomino – **2 additional points**.

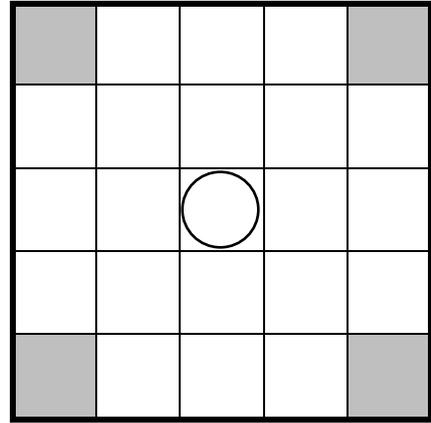
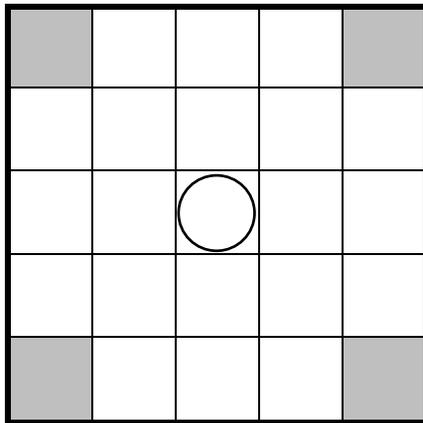
Try to accumulate as much points as you can, but this is not the primary goal.

Part Two: Place in the right grid, too, 25 different letters. The scoring system is identical to the one in the left grid. The left and right grid must be different in the following three aspects:

- 1) The central letters must be different,
- 2) The sets of four corner letters must be completely different (regardless of the position of the corner),
- 3) The unused letters must be different.

Goal: Your score in this puzzle in ONLY the LOWER of the scores in two grids, regardless of the score in your better grid.

Remark: It is allowed for the scores in two grids to be equal.

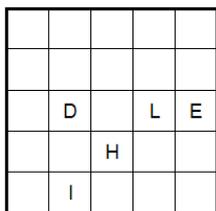


- | | | | | |
|-------|-------|-------|-------|-------|
| AKESU | DELHI | LAGOS | QUITO | TUNIS |
| ALOFI | DUBAI | LAIWU | RASHT | ULSAN |
| ANQIU | EZHOU | MEDAN | RUGAO | VADUZ |
| BAOJI | FUXIN | MILAN | SALEM | WUHAN |
| BENXI | GAOMI | MILUO | SEOUL | WUJIN |
| BURSA | HANOI | MINSK | SOFIA | XINYU |
| BUSAN | KABUL | MOPTI | SURAT | YAREN |
| CAIRO | KAYES | MOSUL | SUWON | YULIN |
| CHIBA | KOCHI | PARIS | THANE | ZHUJI |
| DAEGU | KONYA | PERTH | TOMSK | ZUNYI |

Letters of English alphabet:

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

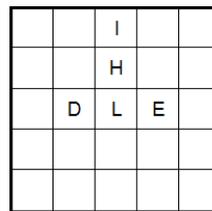
Scoring examples:



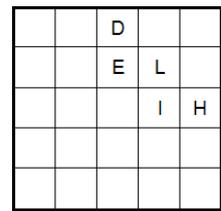
1 point
(letters are connected)



3 points
(word readable through cells)



3 points
(letters form a pentomino)



5 points
(readable and pentomino)