

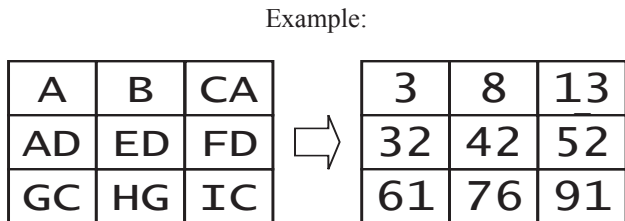
## Puzzles of the 4th Round of the 2007 Internet Puzzle Solvers Test

Answers must be sent to [diogen.club@gmail.com](mailto:diogen.club@gmail.com) not later than 22 December 2007 (at 24:00 Moscow time). Also, please tell us which puzzles you thought were the two best and the two worst. For any question write to <http://diogen.h1.ru/cgi-bin/forum.pl>. Good luck.

### 1. Arithmetic square

*Andrey Bogdanov*

Replace letters with digits so that each row and column contains an arithmetic sequence. Different letters mean different digits, same letters - same digits. Asterisk may mean any digit. Numbers do not start with zero.



AN	* *	IP	ST
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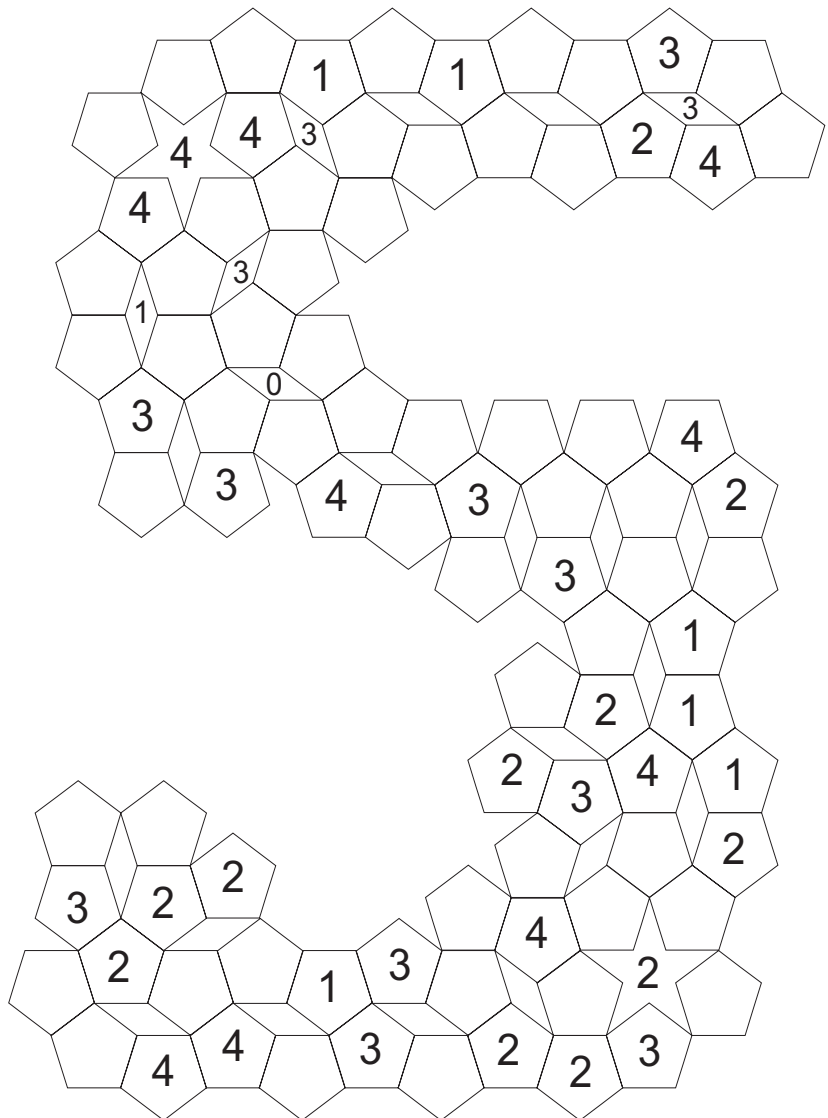
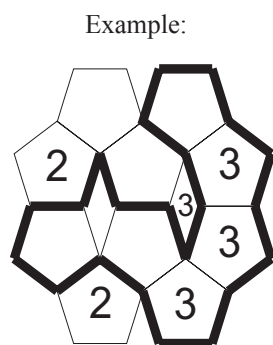
**Answer format:** Write the letters in the order of increasing their values. For the given example the answer would be: CDAEFGHBI.

**Score:** 6 points

### 2. Jubilee fence

*Riad Khanmagomedov*

Draw a single continuous loop along the lines of the grid. The loop may not touch or cross itself. Each number shows the number of sides of the cell used by the loop.



**Answer format:** write the number of cells and the sum of digits inside the fence. For the given example the answer would be: 7, 9

**Score:** 6 points

### 3. Dwarfs of the diagonal

Anurag Sahay

Fill in the grid using standard sudoku rules. Diagonal line in the cell show that the digit in the cell is less then all digit of the corresponding diagonal.

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

Example:

1	2	3	4
3	4	1	2
2	1	4	3
4	3	2	1

**Answer format:** Write the content of main diagonal from the bottom left to the top right corner. For the given example the answer would be: 4114

**Score:** 7 points

### 4. Battleship chain

Alexey Oleshov

Put the big battleship set into the grid. Ships form a loop - each ship touches exactly two other ships only by corner. Digits at the right and on the bottom show the number of cells occupied by the ships in the corresponding row or column.

									4
									4
									4
									4
									4
									4
									4
									3
									3
									5

Example for the small set:

1	3	2	2	2

6 3 2 6 2 5 3 4 4

**Answer format:** Write the size of ships in the loop going clockwise starting with the biggest. For the given example the answer would be: 3,2,1,1,2,1.

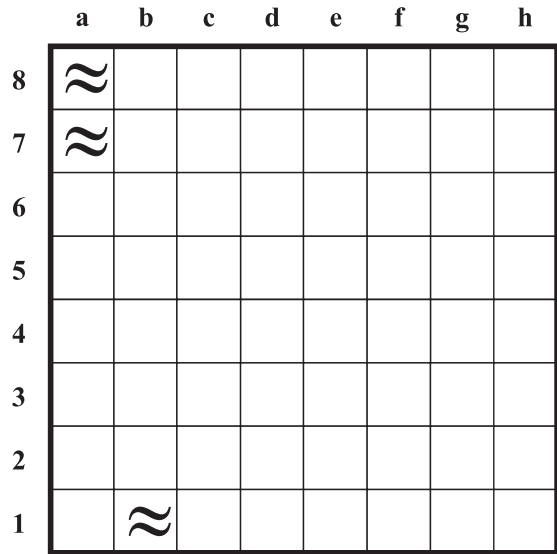
**Score:** 7 points



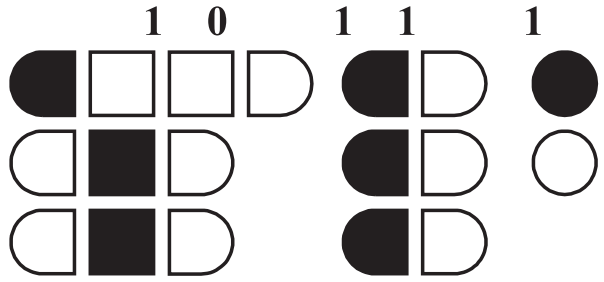
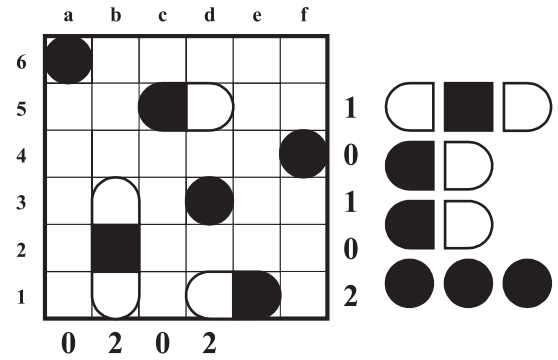
## 7. Black magic

Anurag Sahay

Place the given set of battleships into the grid. Each row and column contains exactly one black segment. Digits at the right and on the bottom show the number of white segments in corresponding row or column. Ships cannot touch each other even by a corner. Do not consider the digits and letters at the left and at the top of the grid - they are only for the answer key purposes.



Example for the small fleet:



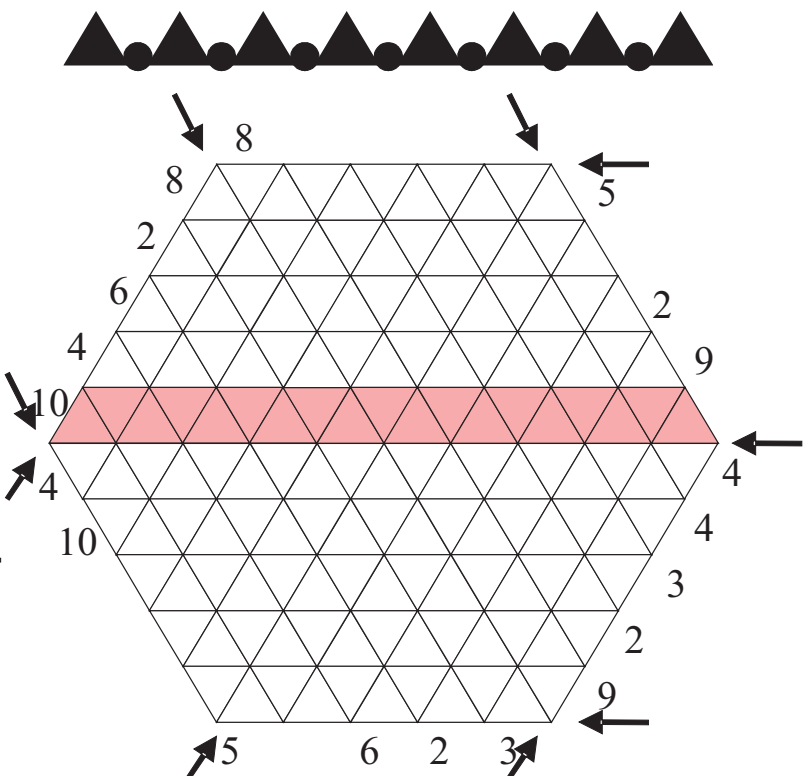
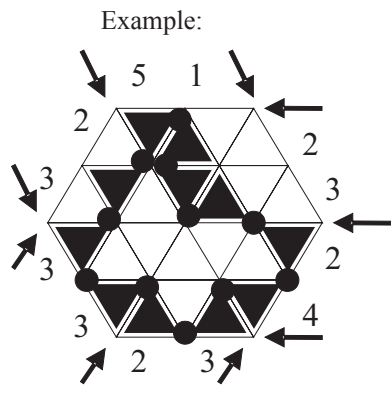
**Answers format:** Write the coordinate of four small ships. For the given example the answer would be: a6, d3, f4.

Score: 7 points

## 8. Chain-saw

Alexey Oleshov

Chain for the saw is a loop from triangles connected by hinges. The part of the chain is on the picture at the right. Place such chain into the grid. Chain cannot overlap or intersect itself. Numbers at the grid edges show the numbers of occupied cells in the direction corresponded to the arrow.



**Answer format:** First write the total number of triangles in the chain. Then the content of marked row from left to right. Use 1 for occupied cells and 0 for empty. For the given example the answer would be: 11,0101100

Score: 8 points

## 9. Cross-sumdoku

Andrey Bogdanov

Fill in the grid using standard sudoku rules. Numbers at the right and on the bottom give the sums of three three-digit numbers which are formed in corresponding row or column.

Example:

1	2	3	4	46
3	4	2	1	55
2	1	4	3	64
4	3	1	2	55
37	37	73	73	

**Answer format:** Write the content of marked diagonal from the bottom left to the top right corner. For the given example the answer would be: 4124

**Score:** 9 points

									2007
									1629
									1881
									1638
									1026
									1737
									1566
									2025
									1476
2223	1548	1098	783	2331	1458	2061	2385	1098	

## 10. New Year square

Vladimir Portugalov

Write digits from 0 to 9 (each can be used exactly once) into the 10 cells of the 5x5 grid. Calculate the sum of all numbers reading horizontally (from left to right) or vertically (from top to bottom) then subtract from it the sum of all numbers reading diagonally (from top left to bottom right or from top right to bottom left). Minimize the absolute difference of this number and 2008. Do not take into account empty cells while reading numbers.


Example:

1	2	3	4	5
6				
7		0		
8				
9				

Horizontally:  $12345+6+70+8+9=12438$

Vertically:  $16789+2+30+4+5=16830$

Diagonally:  $9+8+7+6+10+2+3+4+5+1+26+37+48+509=675$

Result:  $12438+16830-675=28593$

Difference:  $|2008-28593|=26585$

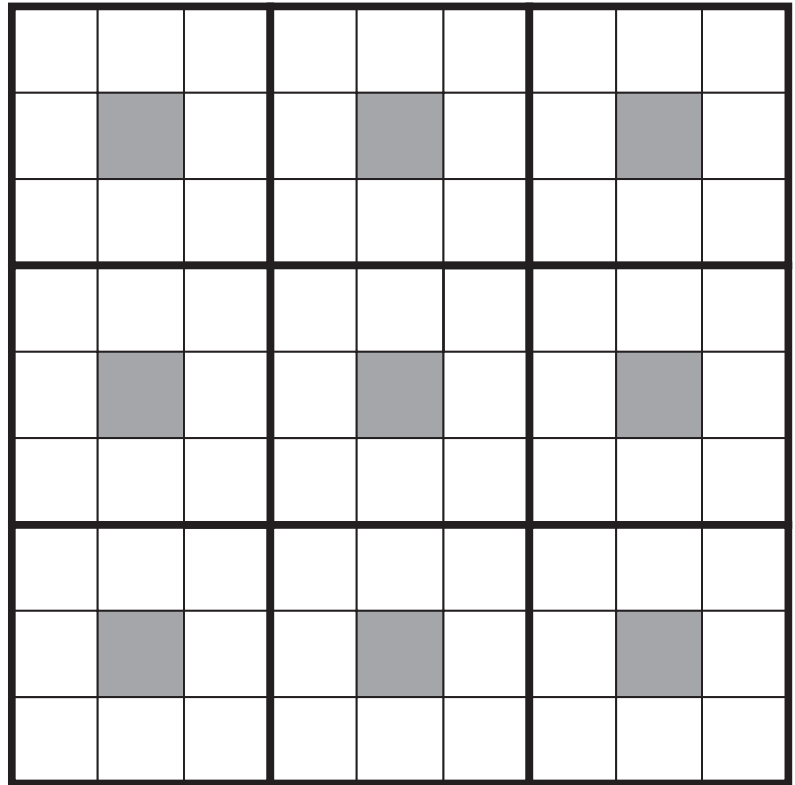
**Answer format:** write the content of the grid row by row from top to bottom. Use “-” for empty cells. For the given example the answer would be: 12345,6---,7-0--,8---,9----

**Score:** 12 minuses half of the difference. No negative points.

## 11. Warrior sudoku

Anurag Sahay

Fill the grid with digits 1 to 8. Each row, column and 3x3 box must have distinct digits. The grey cells must be left empty. No digit may touch another which is either equal or consecutive (3 cannot touch 2, 3 or 4, 1 cannot touch 1,2). Maximize the number of digits placed.



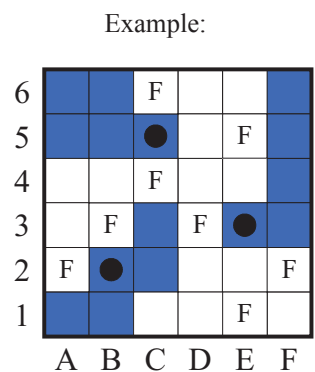
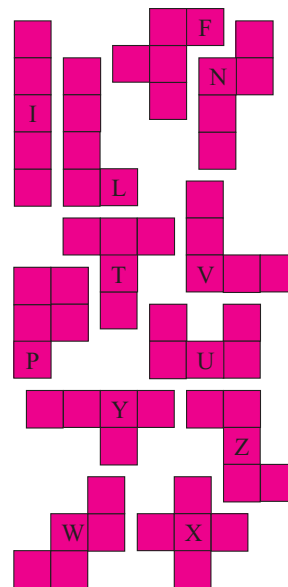
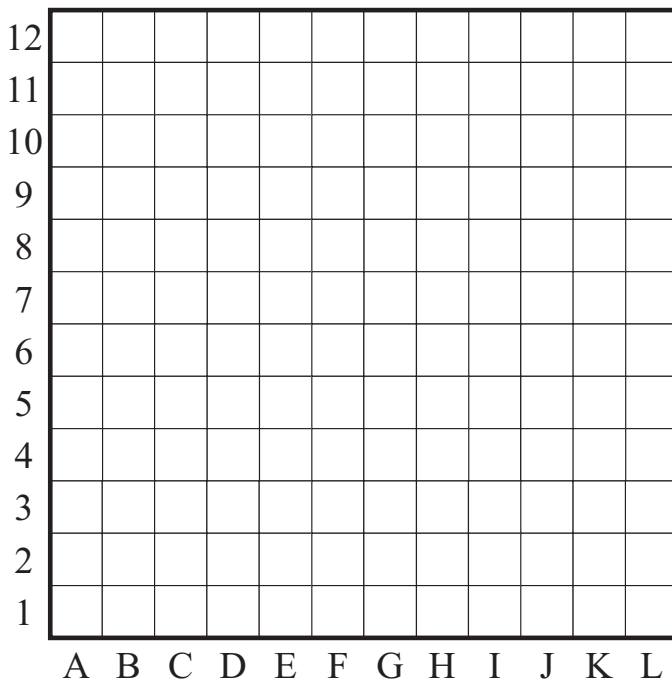
**Answer format:** Write the content of the grid row by row. Use “-” for the empty cells.

**Score:** 0.5 points for every digit over then 40.

## 12. Penta-lamps

Riad Khanmagomedov

Place the complete pentamino set into the 12x12 grid. Pentamino cannot touch each other. Then place lamps into the empty cells. All cells should be illuminated by one or more lamps, but no lamps can illuminate each other. The cell is illuminated if it is in one row or column with a lamp and no pentamino cells between them. Maximize the number of lamps.



**Answer format:** First write the number of lamps and their coordinates. Then write the pentamino placing - for each pentamino write it letter and the coordinates of the cell with its letter. For the given example the answer would be: 8;A2,B3,C4,C6,D3,E1,E5,F2;WB2,LE3,PC5

**Score:** 2 points for each lamp over then 27.

You should send answers via email in simple text with this format:

Name: Ivan Ivanov

E-mail: something@otherthing.com

Country: Russia

1. ...

2. ...

....

12. ...

Best two puzzles: 1,2

Worst two puzzles: 3,4

At the end of the email you can write any commentary.

Thank you for your participation.