LOGIKA & razvedrilna matematika

Triindvajseti letnik, 2013-2014

2



Razpis za najlepšo poliedrsko jelko

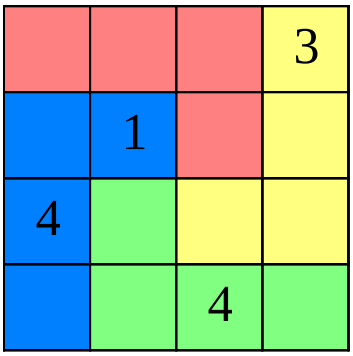


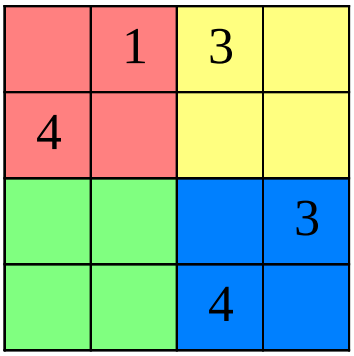


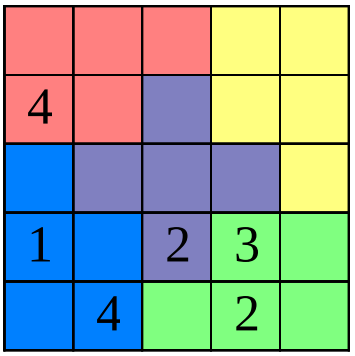
Srečno 2014!

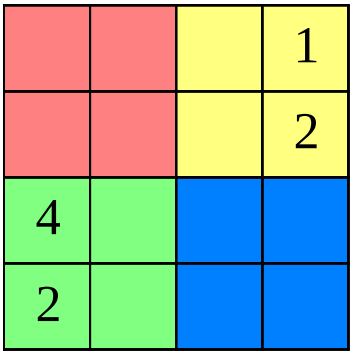
Barvni sudoku

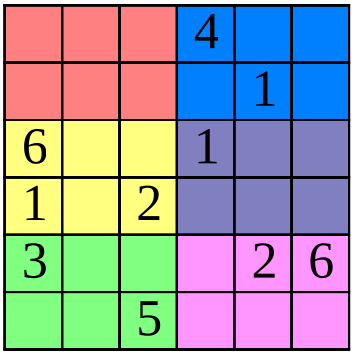
V n × n kvadratkov moraš vpisati začetna naravna števila od 1 do n, tako da bo v vsaki vrstici, v vsakem stolpcu in v kvadratkih iste barve nastopalo vseh n števil.

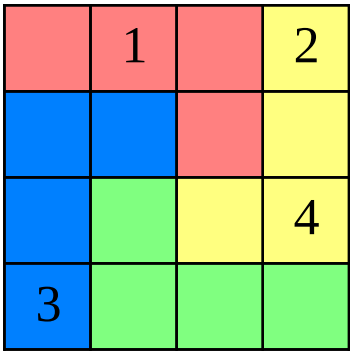


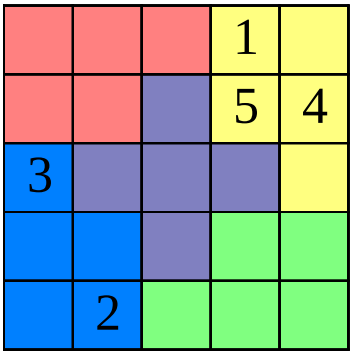


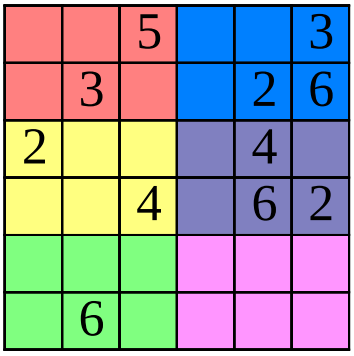


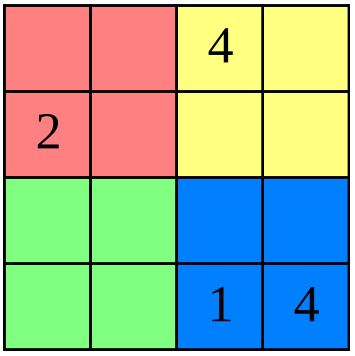


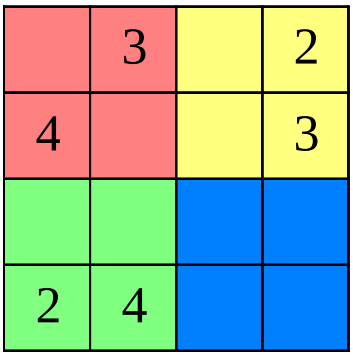


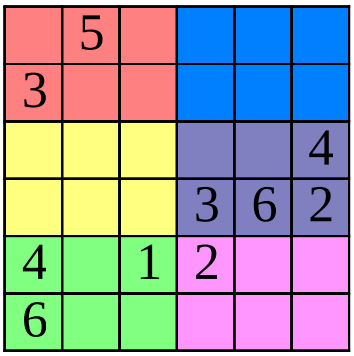


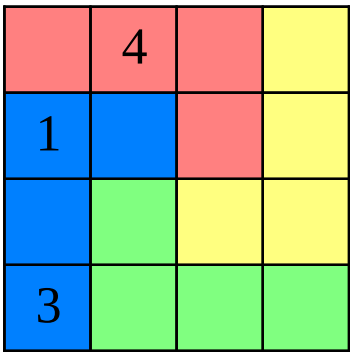












Latinski kvadrati

V n × n kvadratkov moraš vpisati začetna naravna števila od 1 do n tako, da bo v vsaki vrstici, v vsakem stolpcu nastopalo vseh n števil.

3			
2		1	
	1		
			2

1		4	
	4	3	
	2		3

1	4			
3		4	2	
	3		5	
				1

	3		
		1	
4			2
	2		

2				4
			4	
		1		5
5	4		2	

		4	1
		1	
2			

1		3	
4			
	1		
			4

				3
		4		
	3			5
2				
	5	3	2	

	2		
			2
	1		
1			3

3			4
	3	1	
		4	

	1	3		2
2				4
	2			
	4		3	1

4			
	2		
3	1		
			3

Sudoku s črkami

V n × n kvadratkov moraš vpisati začetna naravna števila od 1 do n tako, da bo v vsaki vrstici, v vsakem stolpcu in v kvadratkih z isto črko nastopalo vseh n števil.

B	A 2	B	C
D	A	B	C
D	A 1	C	C
D 3	A	D	B

D	A 1	A	B 2
D	B	A	A
D 3	C	C	B
D	B	C	C

C	C	C 3	C
A 1	B	A	B
D	A	D	D
B 4	B	D	A

C	A	A	C 3
B	A	D	B
B	B	D	D
C 4	C 1	D	A

A	A	A 4	C 3
D	D	B	B
C	C 2	A	D
C	B	D	B

A	A 4	A	B 2
B 1	B	D	B
C	A	D	D
C	C	D	C

D	D	A	B
C 4	C	C 1	C
D	A	A 3	B
B	D	A	B

D	A	D 1	C
A 3	A	D	B
C 2	D	A	C
B	C	B	B

C	D 1	B 3	D 4
A	A	B	C
A	C	C	A
B	D	B	D

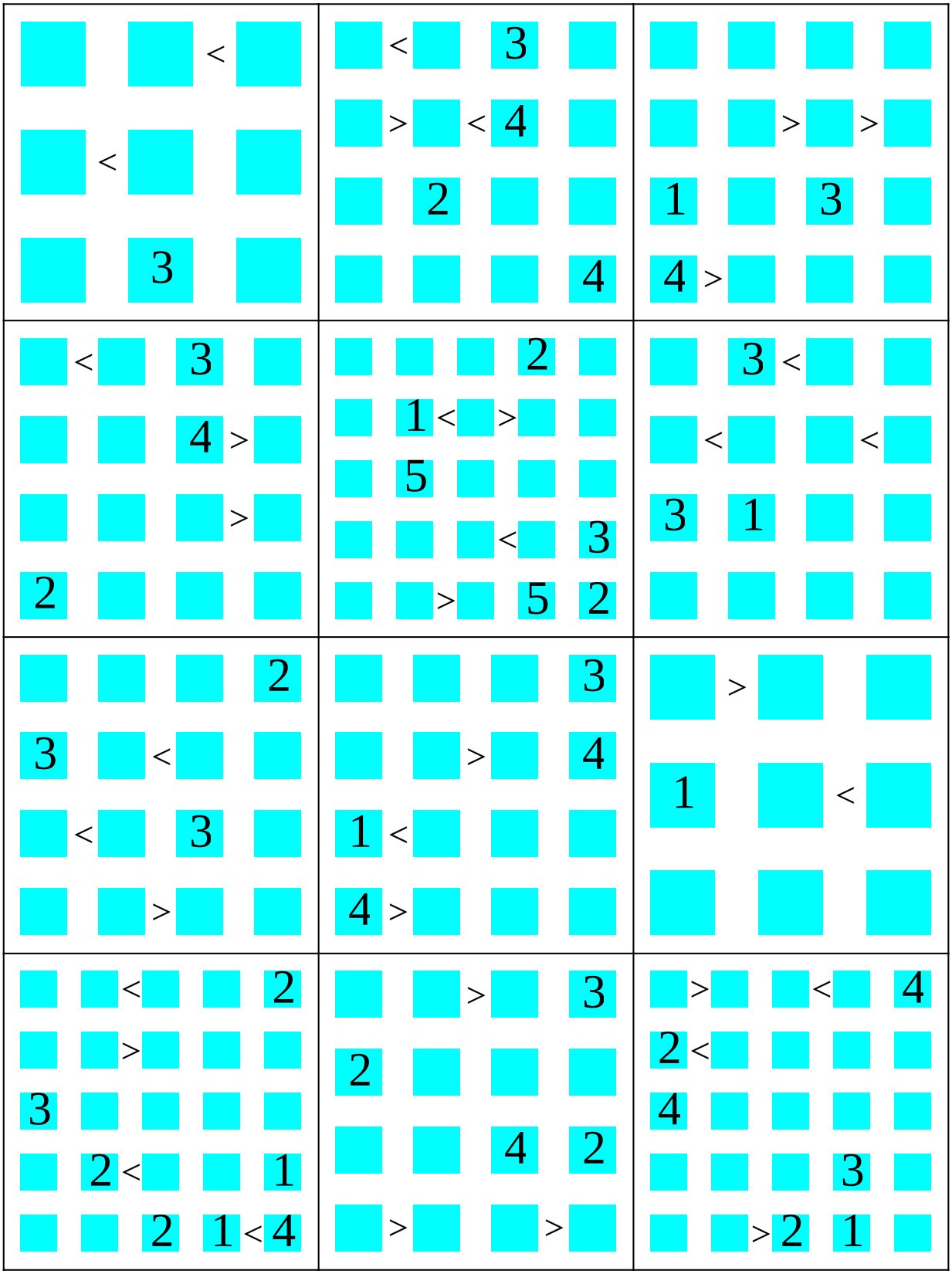
A	C 4	B	C
D 1	C	B	A
D 2	B	D	A
D	C	A	B

C	B 1	A 2	A
D	B	D	C
D	B 3	D	B
C 3	C	A	A

A	C	A	D
C	A	D	D 4
B 1	B	A	C
B	B 2	C	D

Futoshiki

V n × n kvadratkov moraš vpisati začetna naravna števila od 1 do n tako, da bo v vsaki vrstici in v vsakem stolpcu nastopalo vseh n števil ter da bodo izpolnjene vse relacije.



Rdeči kvadratki

Naloga reševalca je, da poišče vse skrite rdeče kvadratke in jih označi z R. Pri tem veljata naslednji pravili: a) Vsako število v preglednici pove, koliko sosednjih kvadratkov je rdečih. Kvadratek je soseden kvadratku, če imata skupno stranico ali oglišče. b) Kvadratki s številkami niso rdeči.

1			
			1
		2	
1		1	1

	2	1	
	3		3
0			

0			
			0
	2	0	

	1		
			2
0		2	
	0		1

0	1	2	
0		1	
		0	

		1	
	1	1	1
	1	1	
			0

1		0	
1		1	0

2			
			1
2			2
0			2

1		2	
2			
	3	3	1
		1	

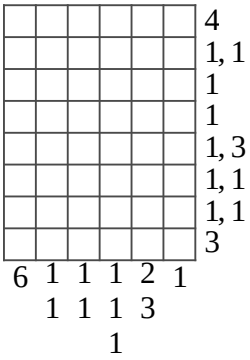
1	2	2	1
	2		
		2	1

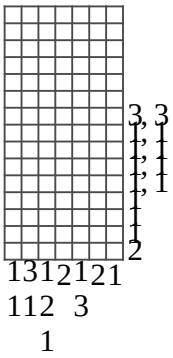
	1		
1			2
1		3	
		2	1

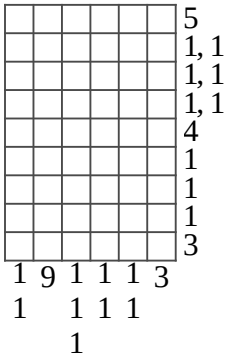
	1		0
2			
	1	0	

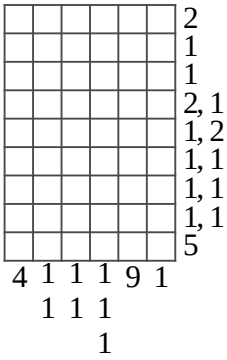
Gobelini

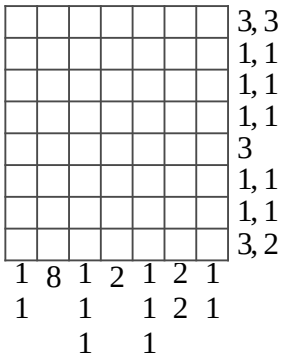
Kvadratke v razpredelnici moraš pobarvati sivo tako, da bo zaporedje sivih pasov v vrstici ustrezalo zaporedju števil na desni, in da bo zaporedje sivih pasov v stolpcu ustrezalo zaporedju števil pod njim.

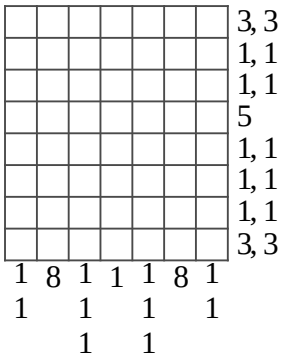


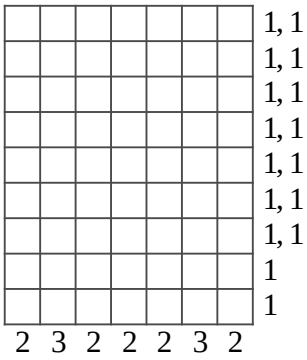


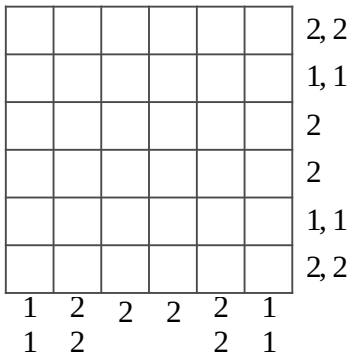


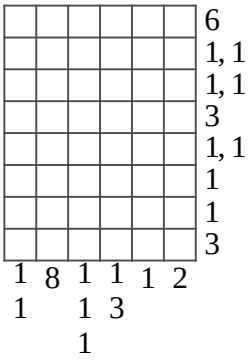


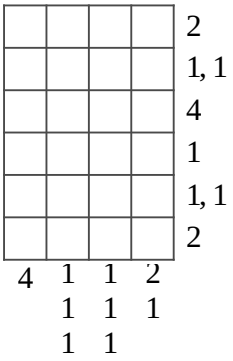


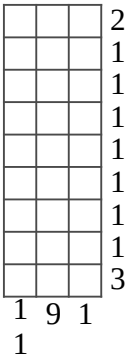


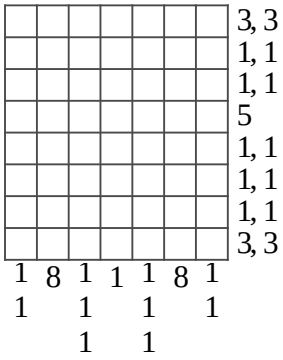






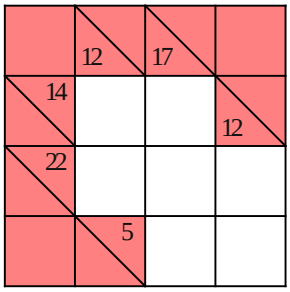


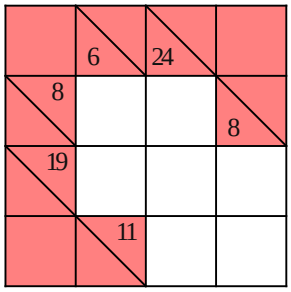


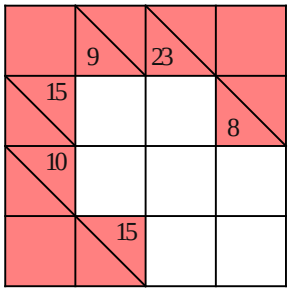


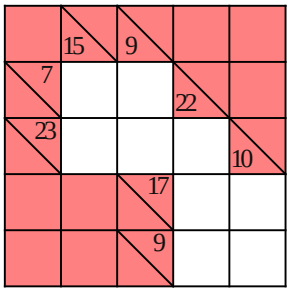
Križne vsote

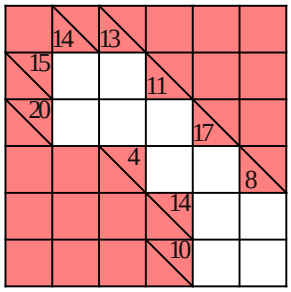
Naloga reševalca je, da izpolni bele kvadratke s števkami od 1 do 9 tako, da je vsota števk v zaporednih belih kvadratkih po vrsticah in stolpcih enaka številu, ki je zapisano v rdečem kvadratku na začetku vrstice (stolpca) nad (pod) diagonalo. Pri tem pa morajo biti vse števke v posamezni vrstici (stolpcu) različne.

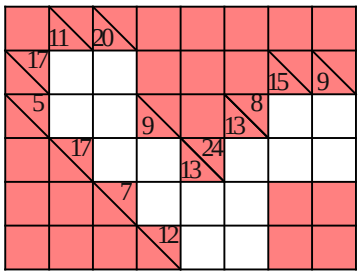


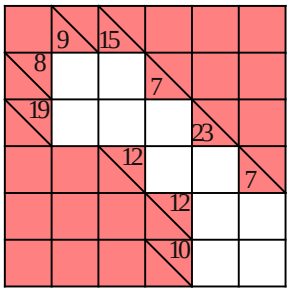


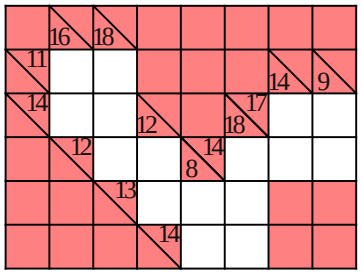


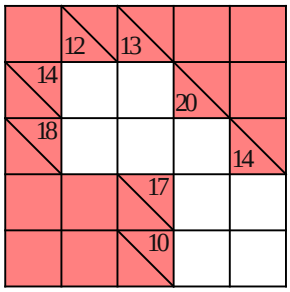


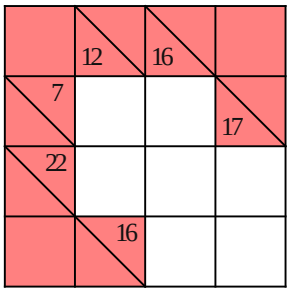


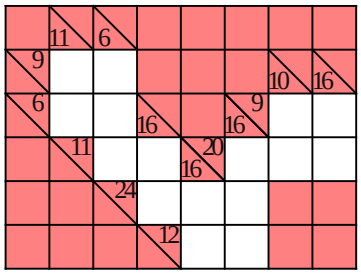


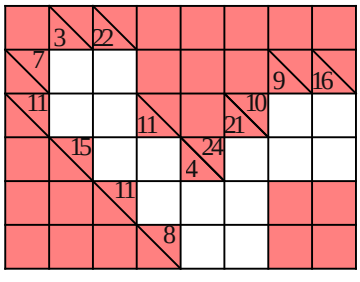








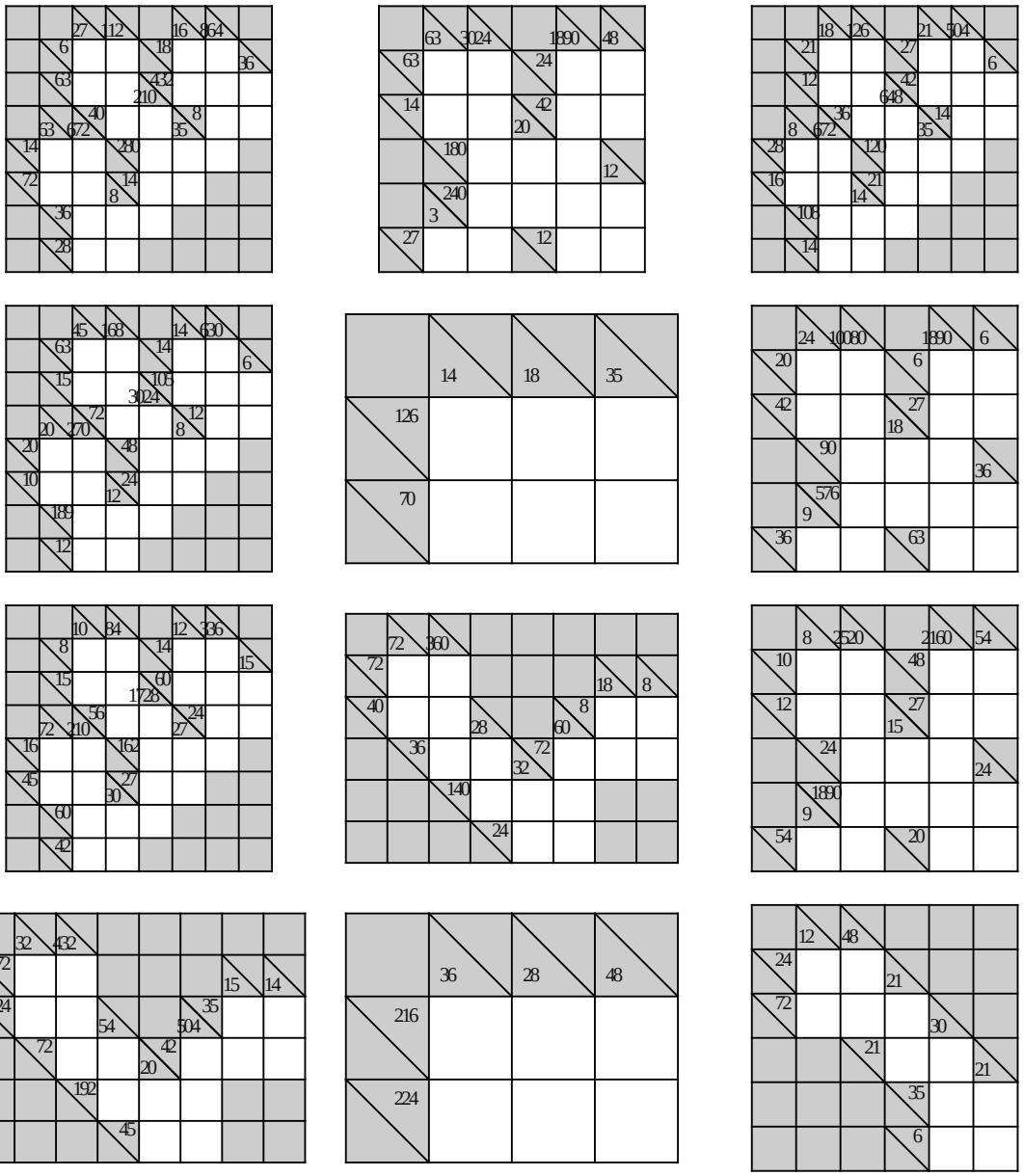




mudnik ŽIROVSKI VRH
24. državno tekmovanje iz razvedrilne matemtike

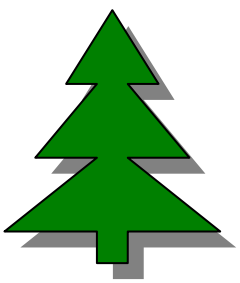
Križni produkti

Naloga reševalca je, da izpolni bele kvadratke s števkami od 1 do 9 tako, da bo zmnožek števk v zaporednih belih kvadratkih po vrsticah in stolpcih enak številu, ki je zapisano v sivem kvadratku na začetku vrstice (stolpca) nad (pod) diagonalo. Pri tem pa morajo biti vse števke v posamezni vrstici (stolpcu) različne.



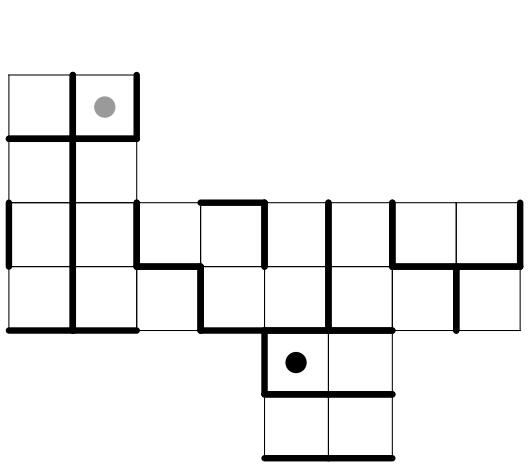
Razpis za najlepšo poliedrsko jelko

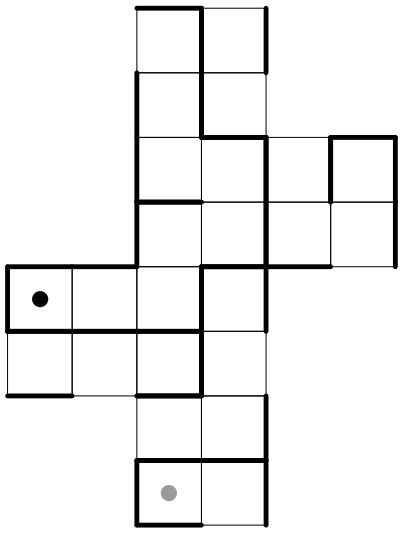
Pošljite fotografije svojih novoletnih jelk, okrašenih s poliedri do 20.1.2014. Najlepše jelke bomo objavili v prihodnji številki.

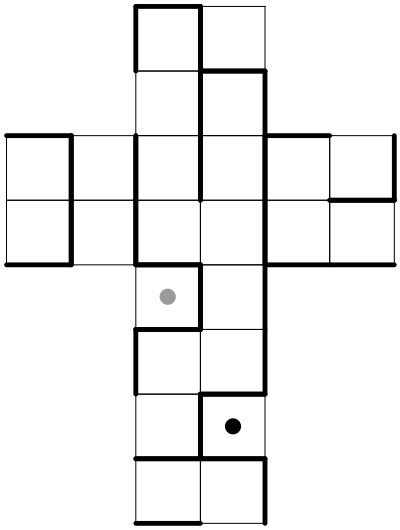


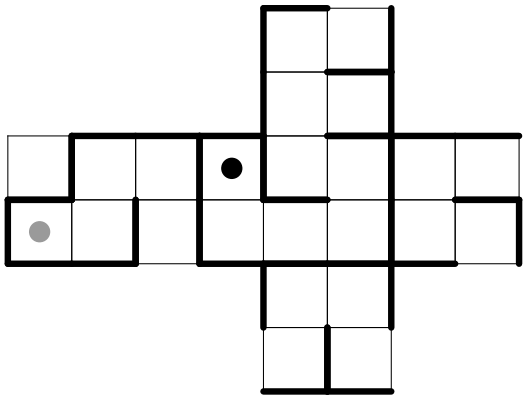
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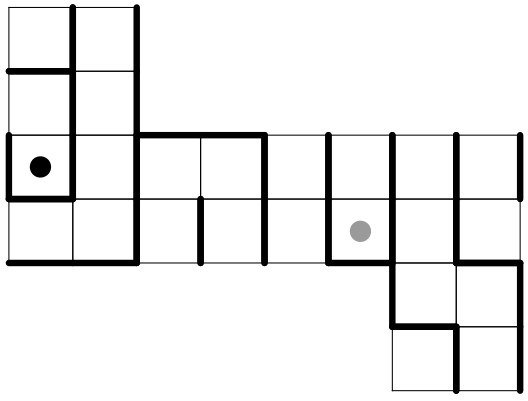
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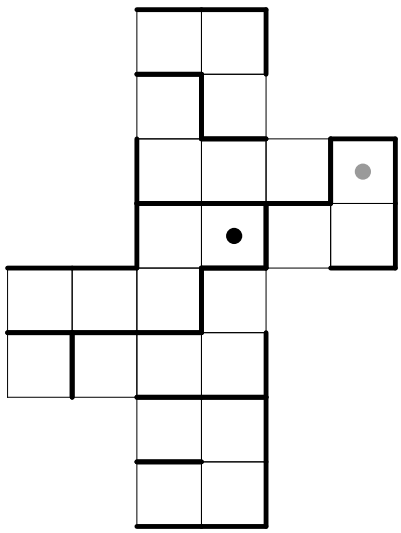






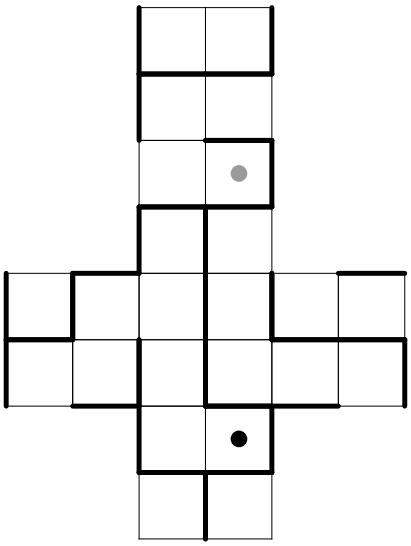


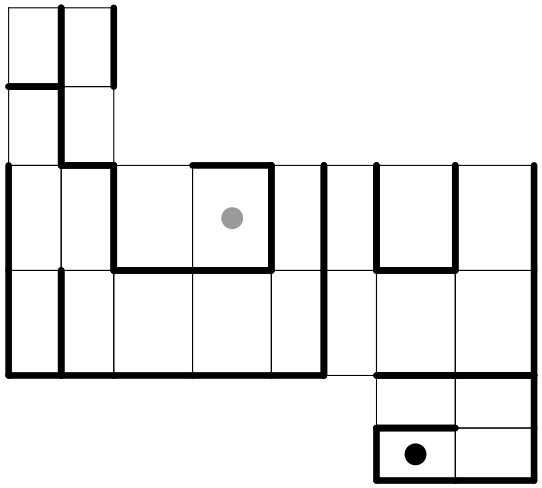


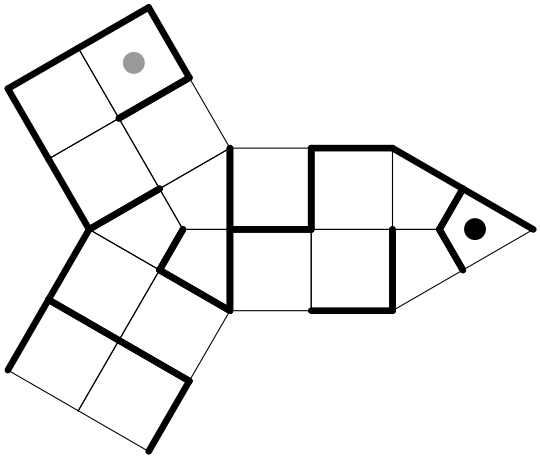


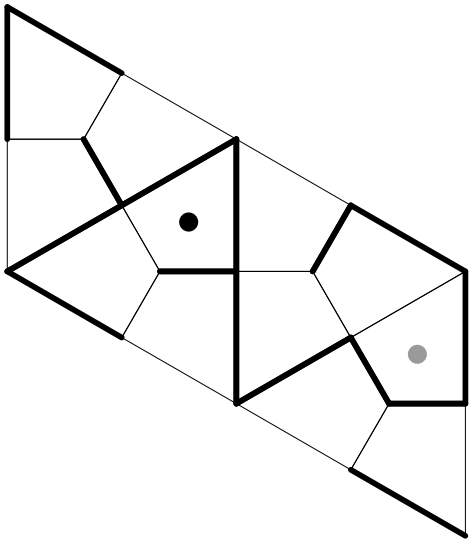
Labirinti na enostavnih poliedrih

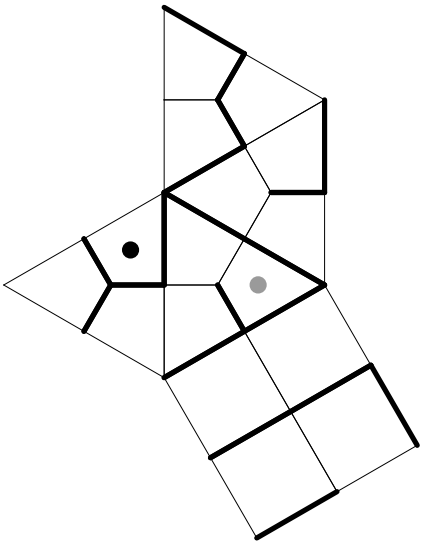
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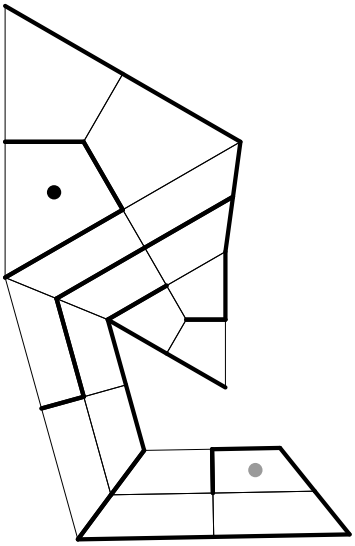




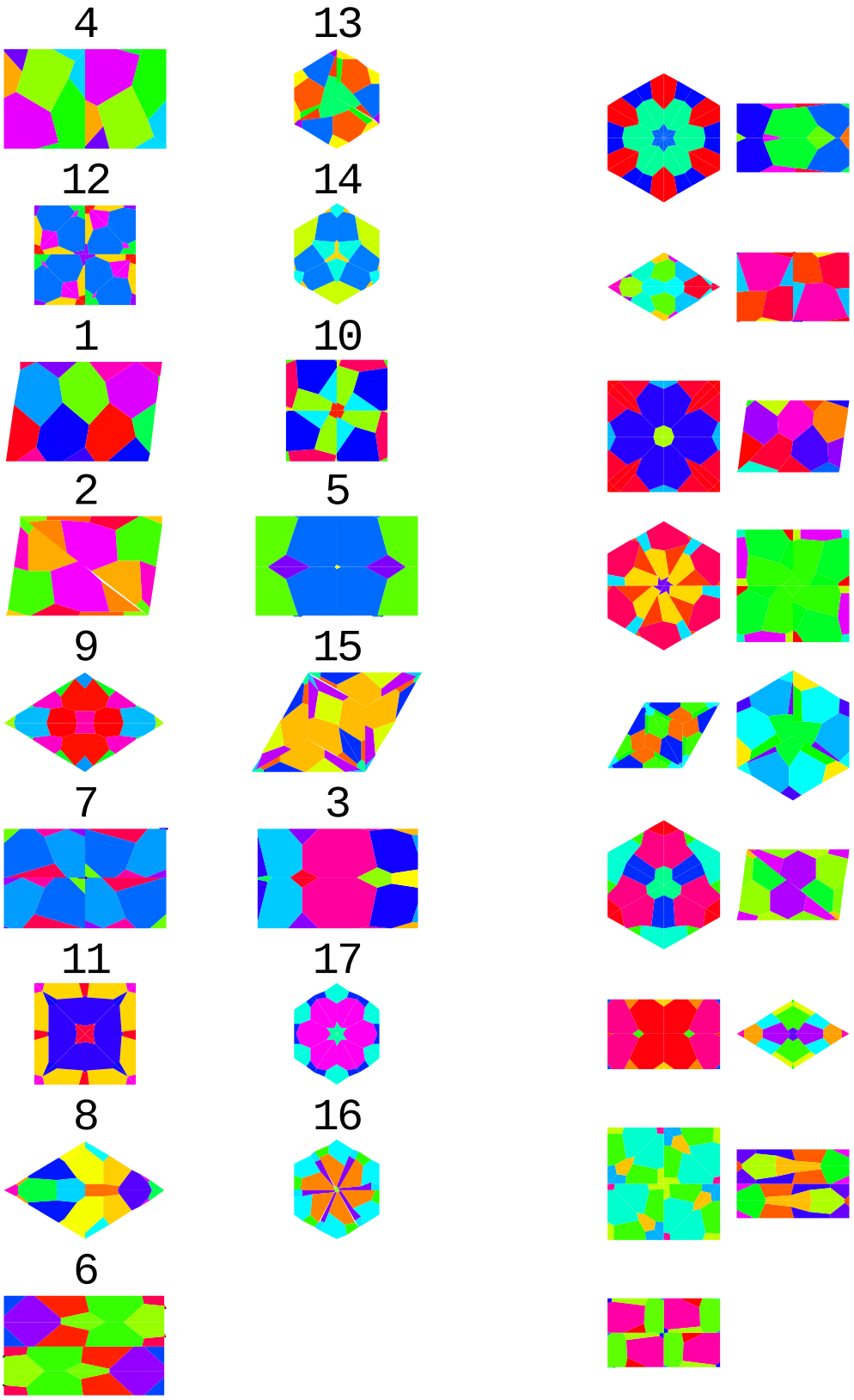






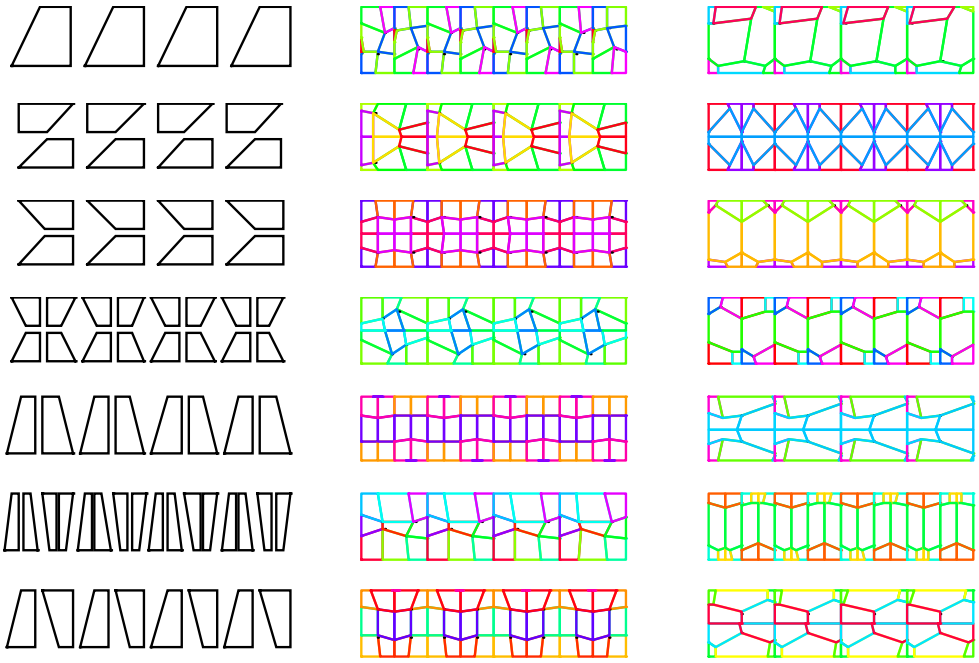


Poveži sličici, ki pripadata isti grupi

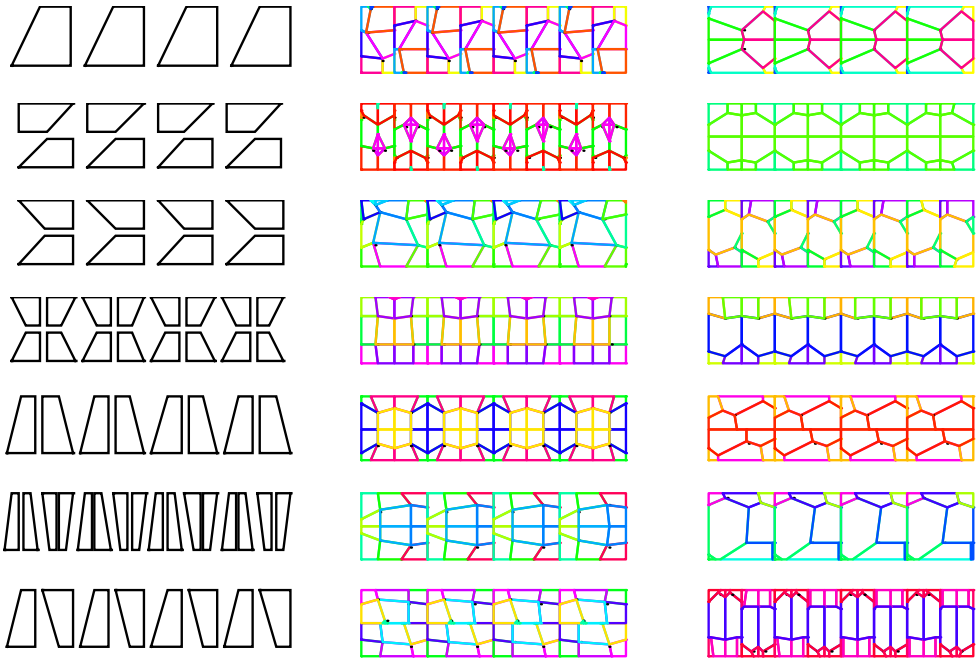


Poveži sličici, ki pripadata isti grupi

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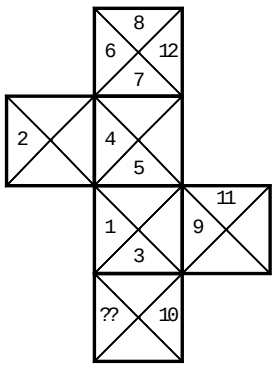


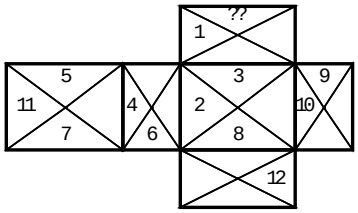
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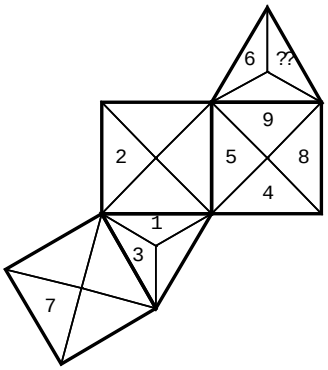


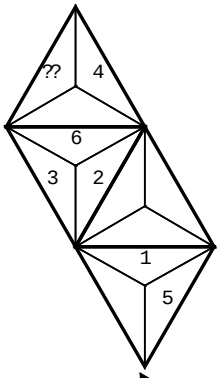
Prostorska predstavljivost

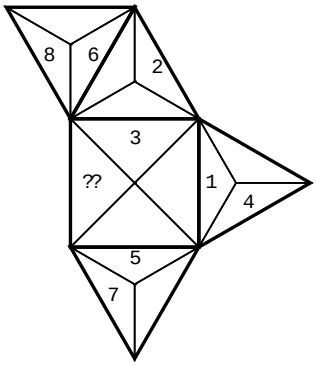
a) Katero število moramo vpisati na mesto znaka ??, da bosta stranici pripadali istemu robu poliedra?

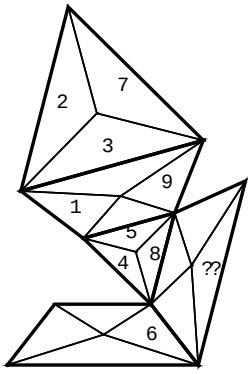

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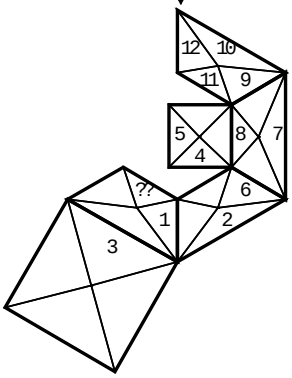

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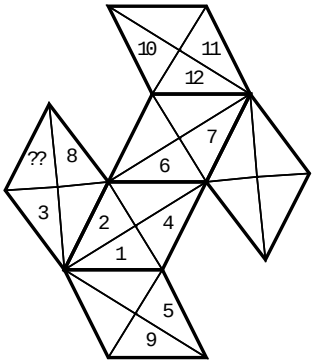

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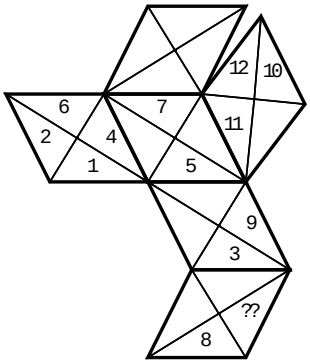

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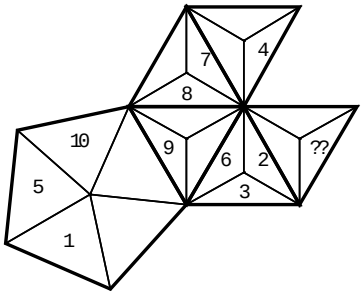

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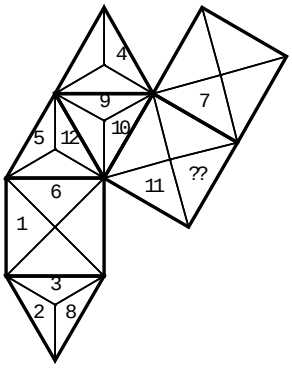

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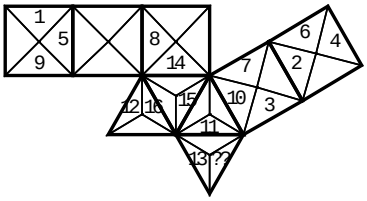

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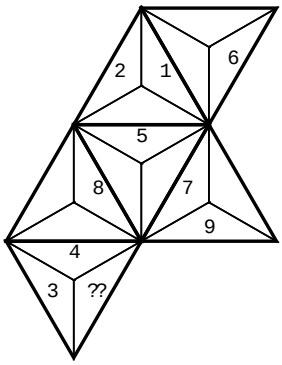

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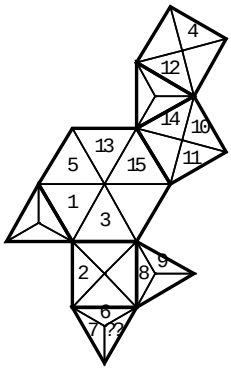

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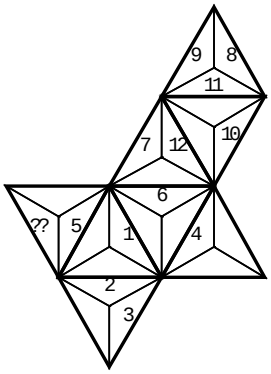

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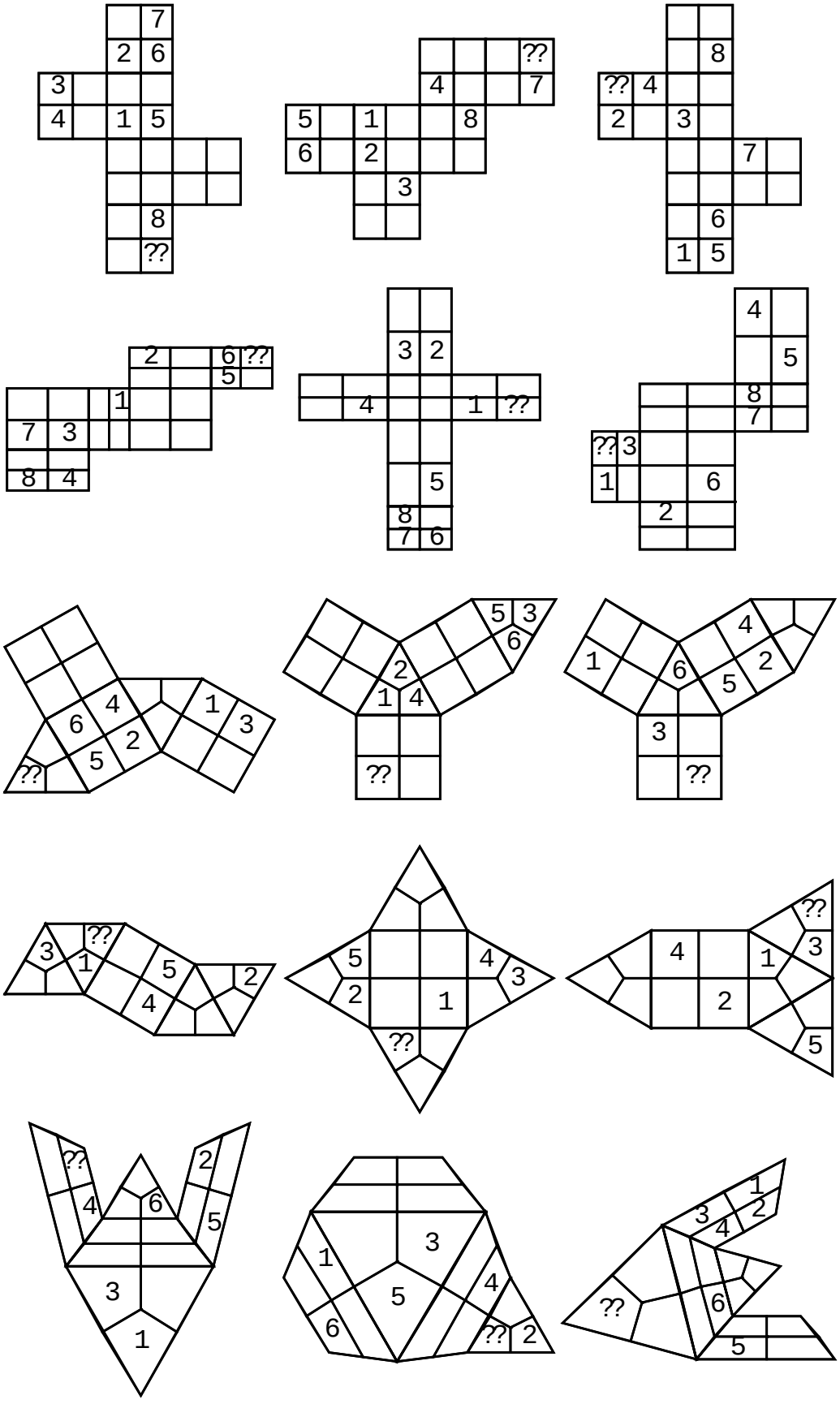

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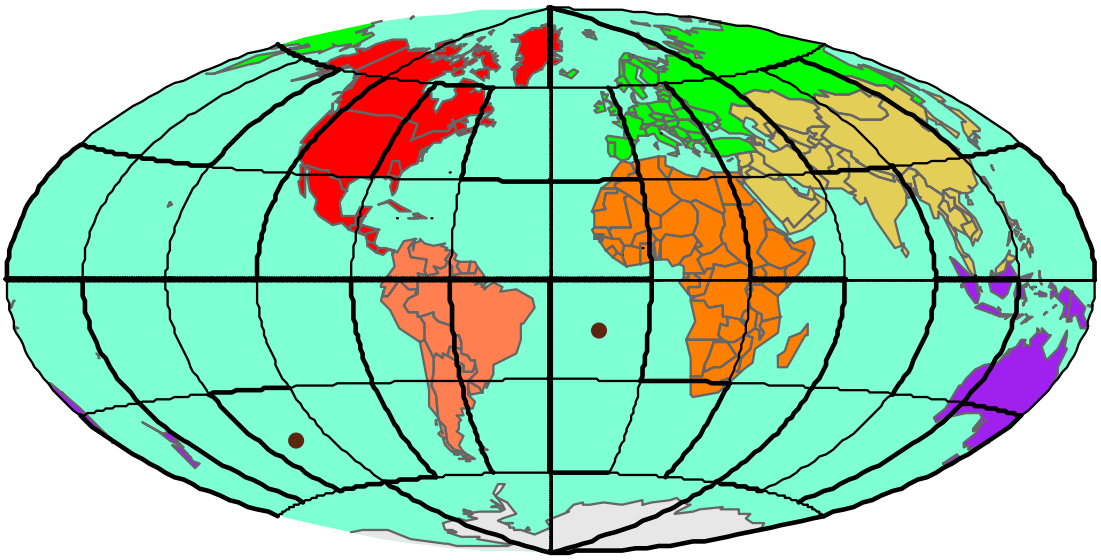

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b) Katero številko moramo vpisati na mesto znaka ??, da bosta oglišči pripadali istemu oglišču poliedra?

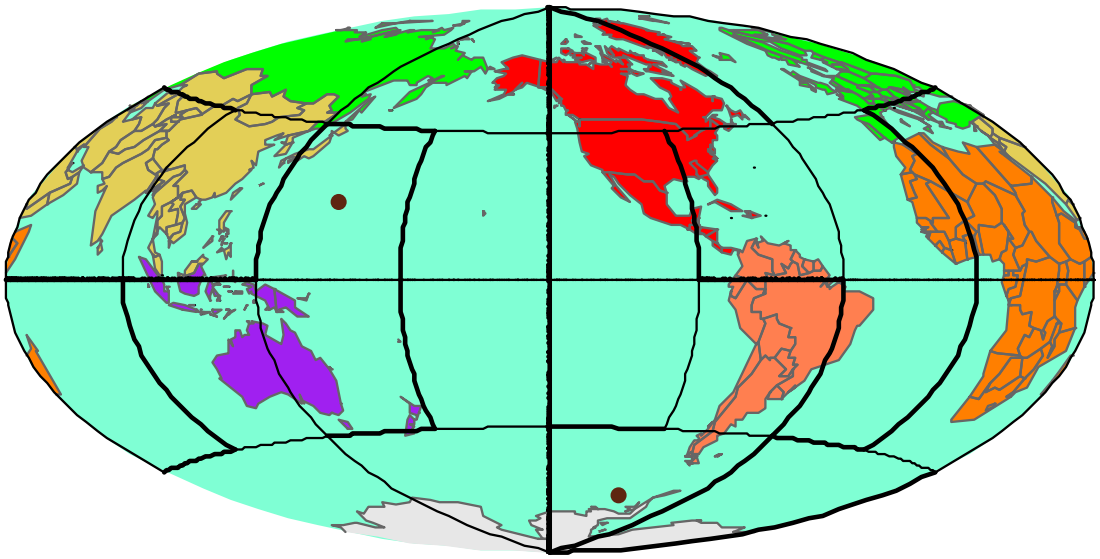


Labirinti na zemljevidu

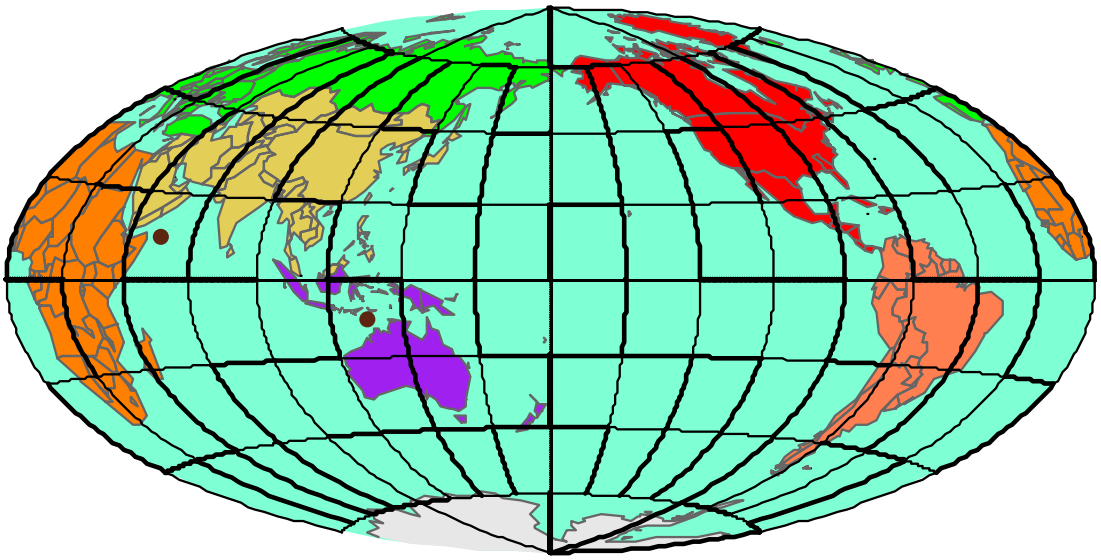
a)



b)

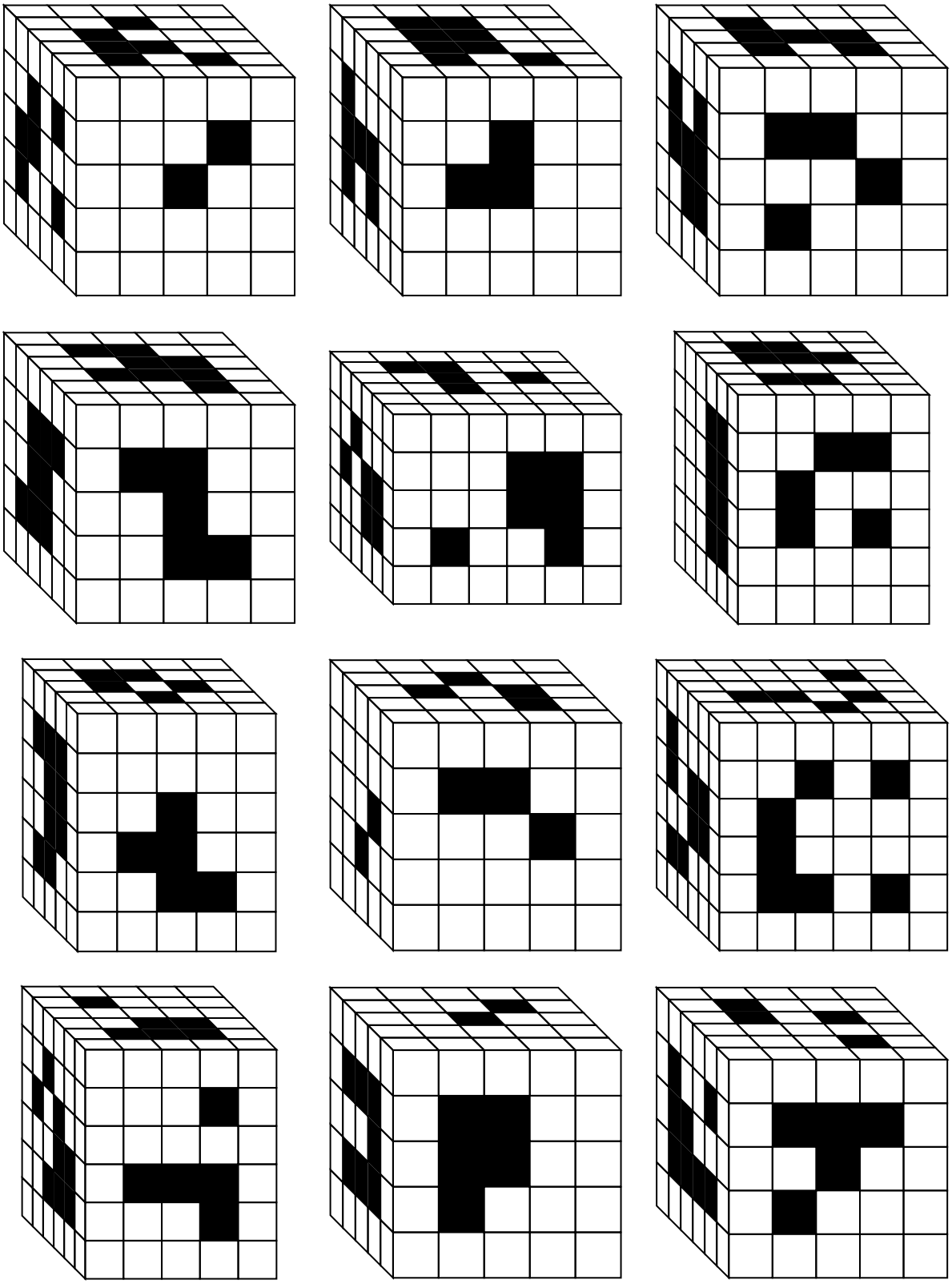


c)



Odstranjene kocke

Dan je kvader, ki sestoji iz kockic. Odstranimo vse kocke, ki so zaznamovane črno od vrha do dna, od leve do desne in od spredaj do zadaj. Koliko kock smo odstranili?



Nagradna logična naloga

Štirje prijatelji (Miran, Tone, Izidor, Dane) z različnimi priimki (Hribernik, Planinc, Vrhovnik, Grilj) različnih poklicev (zdravnik, mizar, odvetnik, notar) so iz različnih krajev (Kamnik, Medvode, Jesenice, Piran).
Za vsakega določi ime, priimek, kraj bivanja in poklic.

1. Miran je mizar.
2. Planinc je doma na Jesenicah.
3. Odvetnik ni doma ne na Jesenicah ne v Kamniku.
4. Tone se ne piše ne Grilj ne Vrhovnik.
5. Notar ni doma ne v Kamniku ne na Jesenicah.
6. Izidor ni odvetnik.
7. Vrhovnik ni doma iz Medvod.
8. Grilj ni doma iz Kamnika.
9. Mizar ni doma z Jesenic.
10. Vrhovnik ni po poklicu mizar.
11. Notar ni iz Pirana.

	Hribernik	Planinc	Vrhovnik	Grilj	zdravnik	mizar	odvetnik	notar	Kamnik	Medvode	Jesenice	Piran
Miran												
Tone												
Izidor												
Dane												
Kamnik												
Medvode												
Jesenice												
Piran												
zdravnik												
mizar												
odvetnik												
notar												

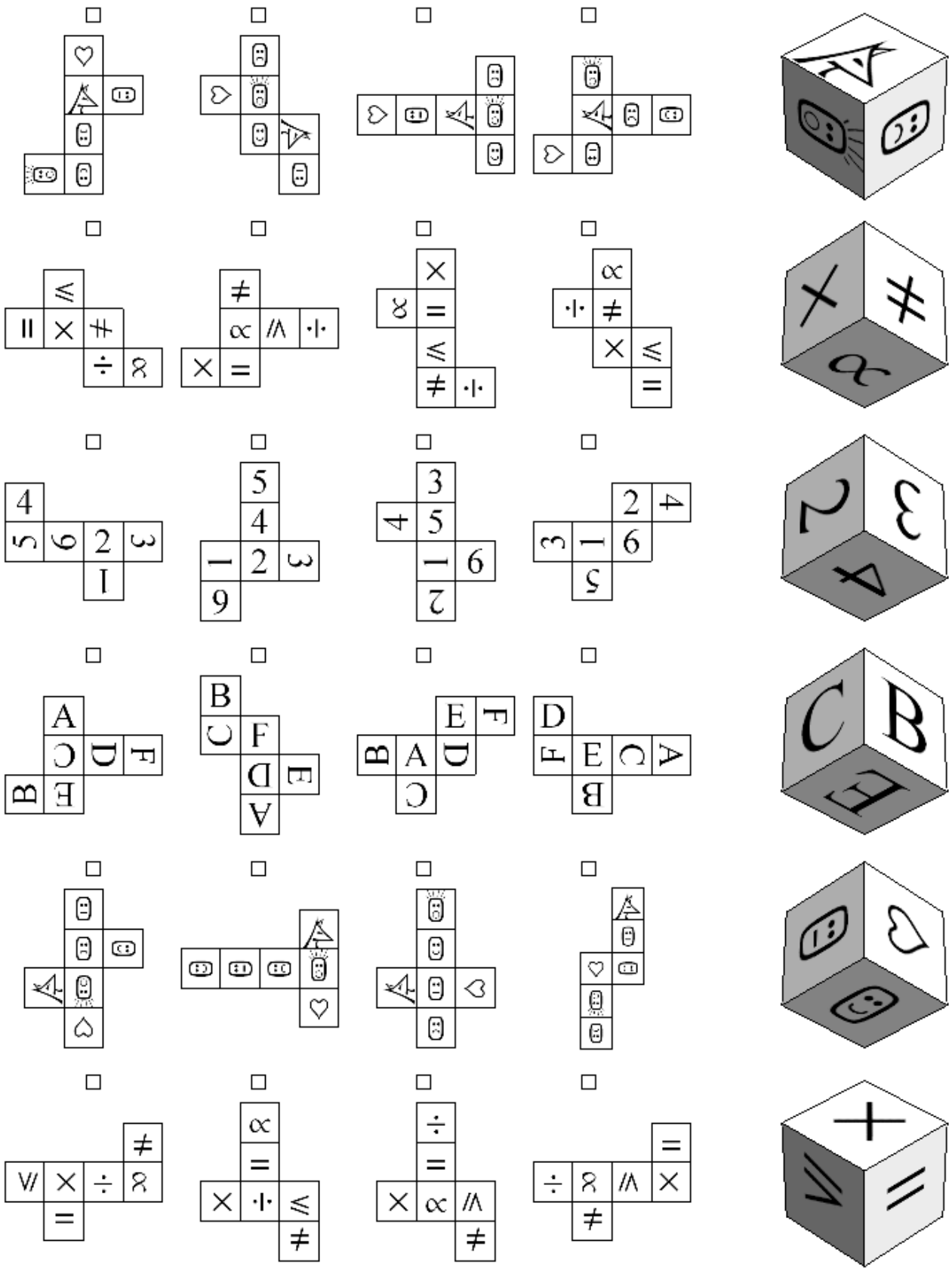
Ime	priimek	poklic	kraj
Miran			
Tone			
Izidor			
Dane			

Rešitve pošljite na naslov: *Logika d.o.o., »Nagrada uganka«, Svetčeva pot 11, 1240 Kamnik*, do 30.1.2014.

Nagrajenci iz prejšnje številke:
Naslednje reševalke nagradne uganke iz 1. številke bodo prejele poševno prizmo:
Ines Hlupić, Eva Cesarec, Ema Rojs Burkelc in Ara Ivič, vse iz Rogaške Slatine.

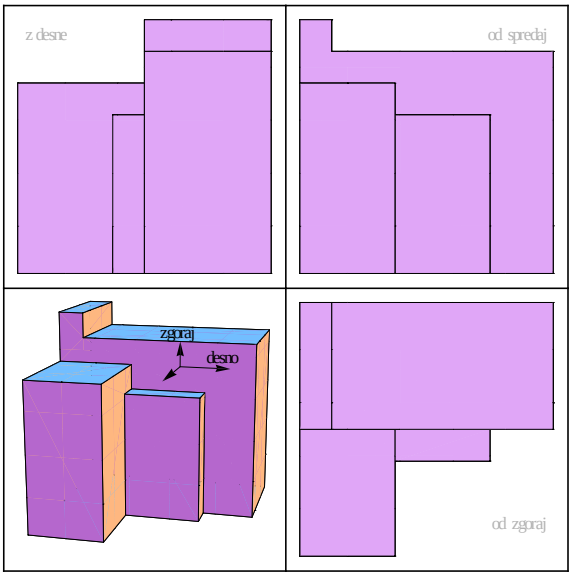
Kocki določi mrežo

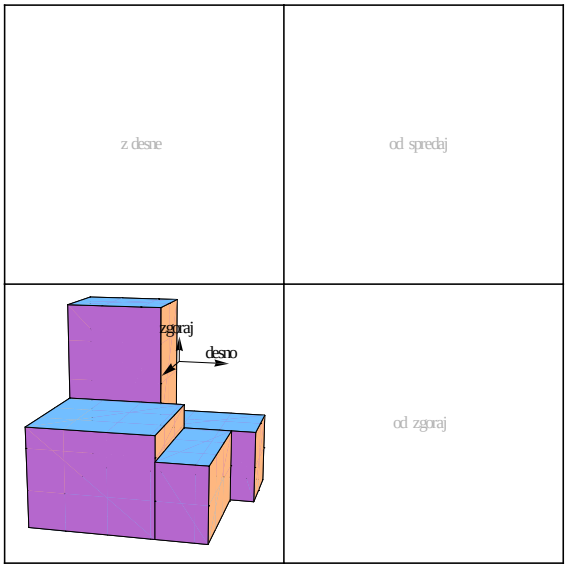
Vsaki kocki na desni določi njeno mrežo.

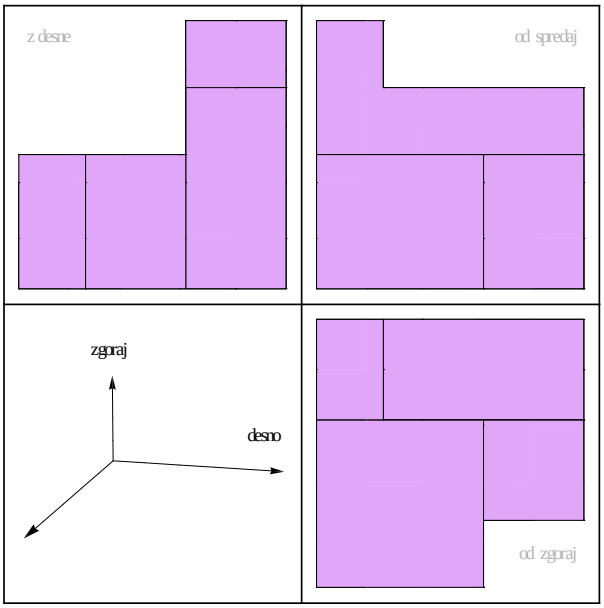


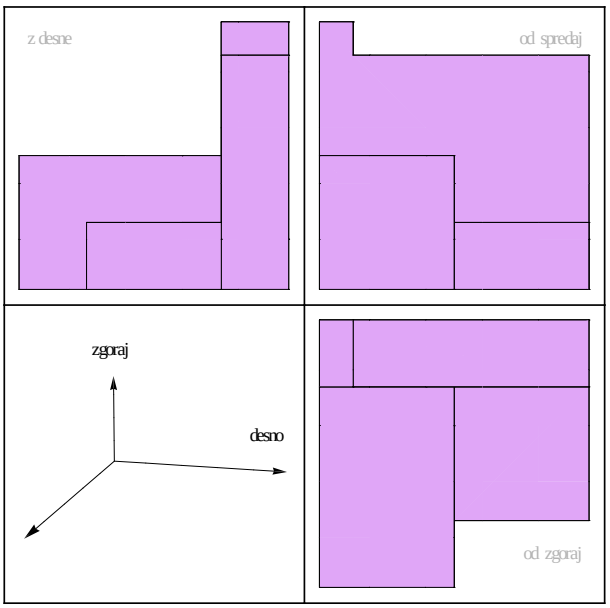
Pravokotne projekcije in prostorska predstavljivost

Tehnične risbe predmetov običajno sestavljajo tri pravokotne projekcije, ki jim rečemo tloris, naris in stranski ris. Tloris je risba telesa kot ga vidimo od zgoraj, naris pa je risba od spredaj. Stranski ris je običajno risba telesa, kot ga vidimo z leve, tokrat pa bomo vzeli, da ga gledamo z desne.
Naše telo bo sestavljeno iz štirih kvadrov. Dva tvorita kotnik, pred kotnikom pa sta še dva kvadra. Pri eni nalogi je dano telo, mi pa moramo narisati omenjene tri projekcije. Druga naloga zahteva risbo telesa, če so dane projekcije. Višina, širina in dolžina telesa je vedno 8, ostali robovi imajo celoštevilsko dolžino, ki jo lahko ocenimo s slike. Zato lahko izračunamo prostornino telesa.









Rešitve

Barvni sudoku

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Latinski kvadrati

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Sudoku s črkami

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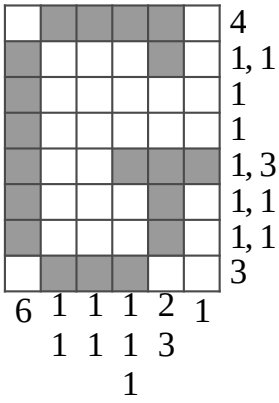
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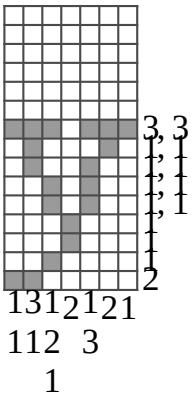
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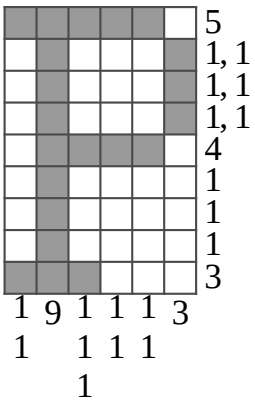
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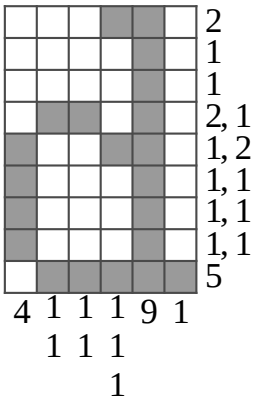
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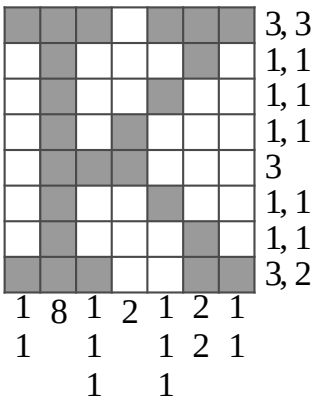
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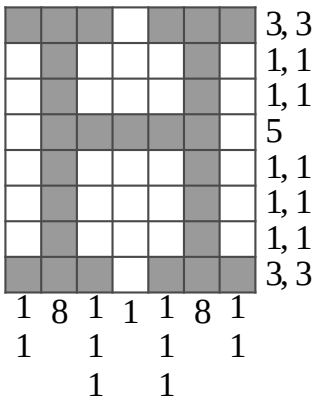

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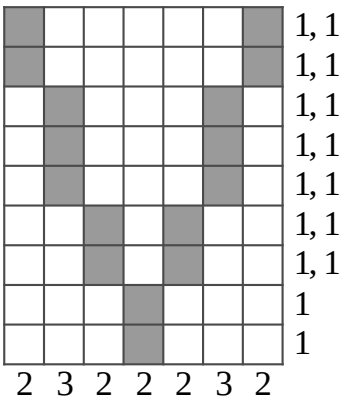

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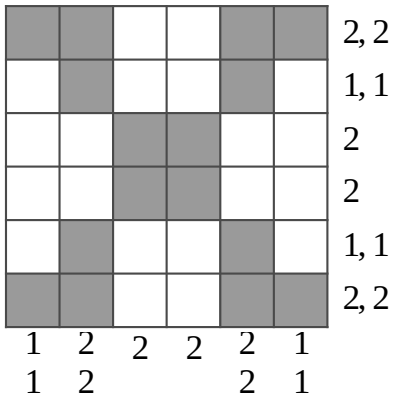

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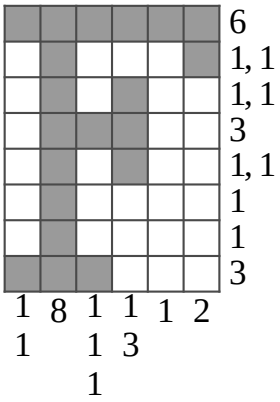

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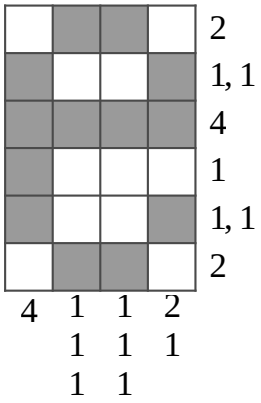

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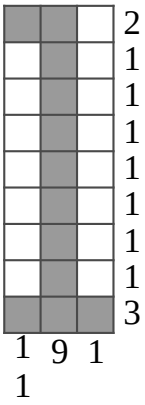

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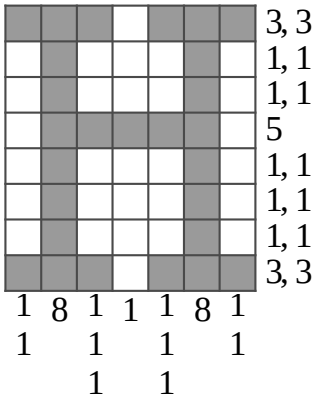

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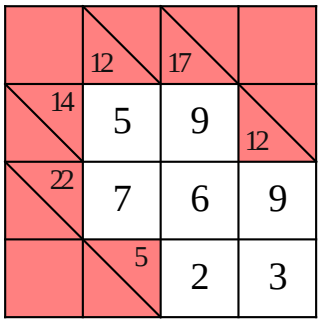

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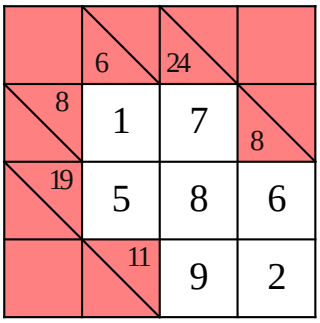

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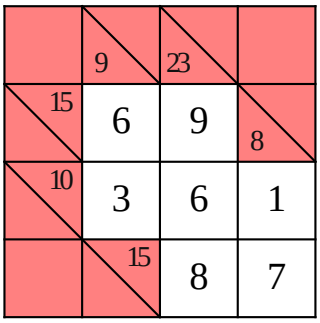

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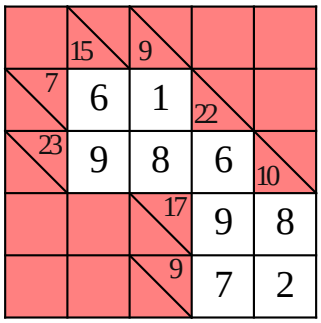

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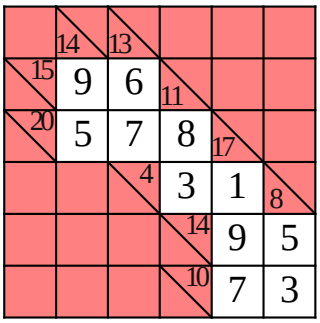
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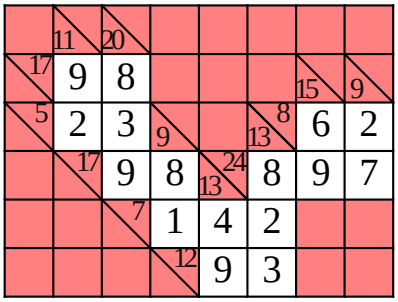


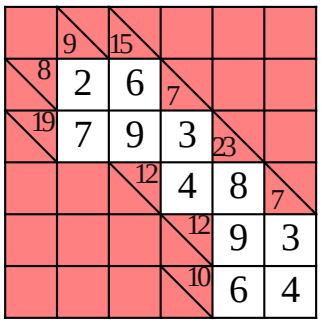


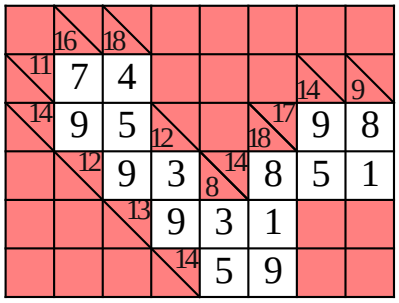


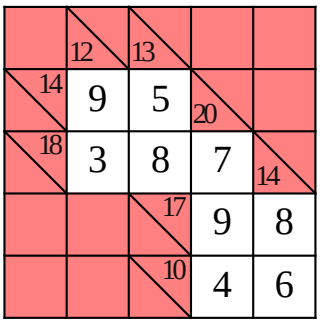


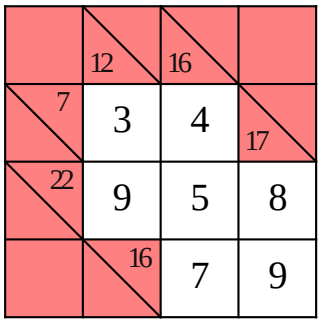


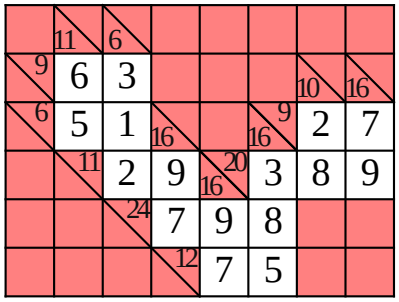


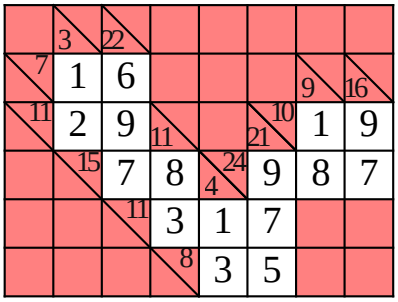




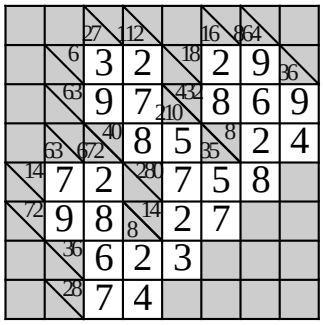


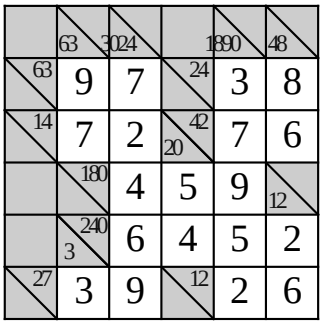


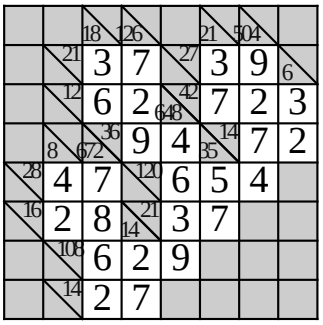


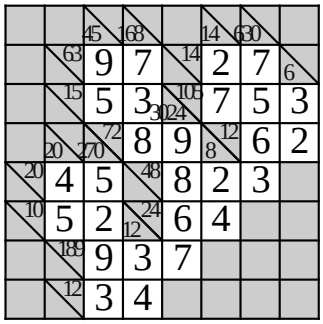


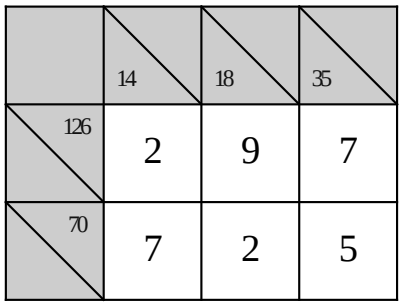
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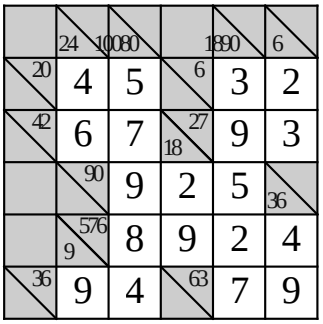


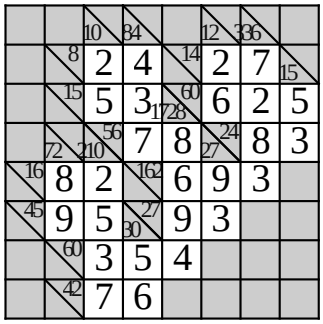


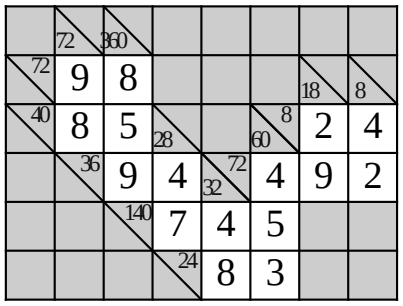


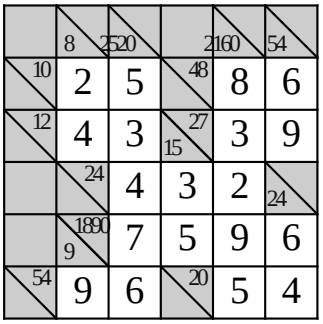


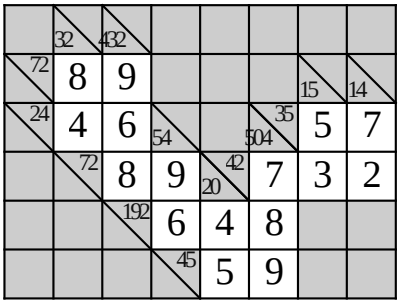


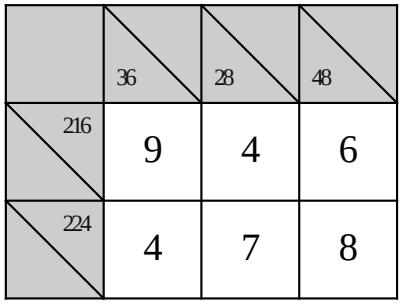


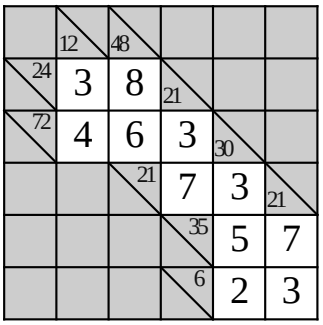




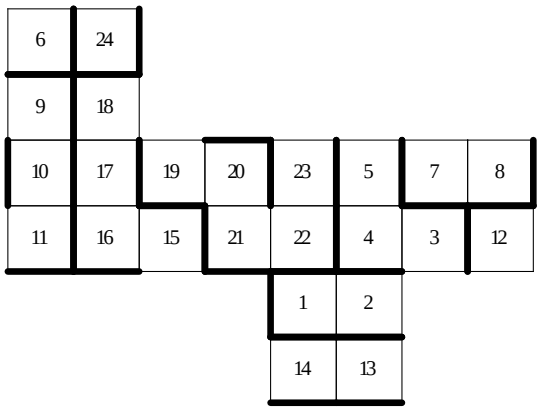


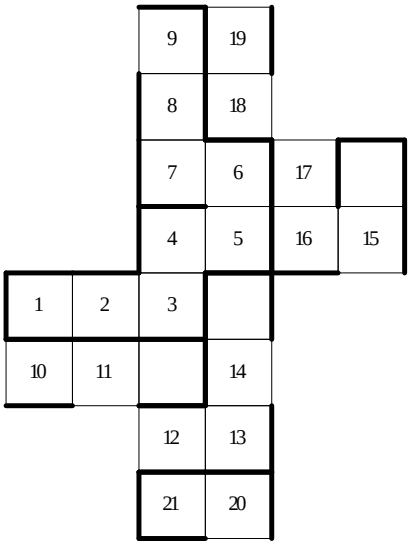


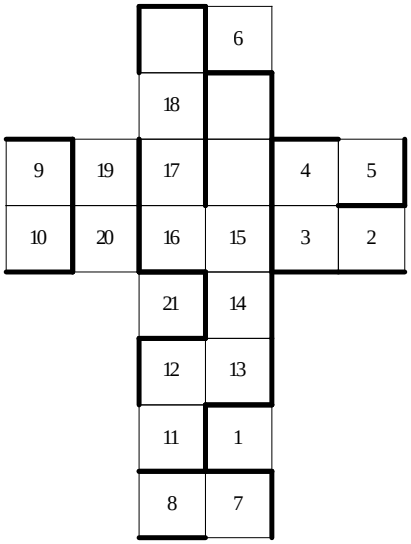


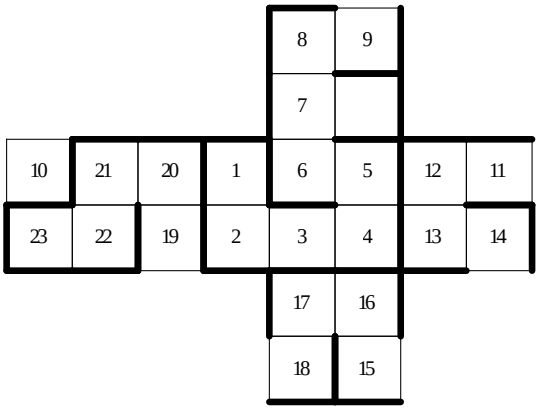


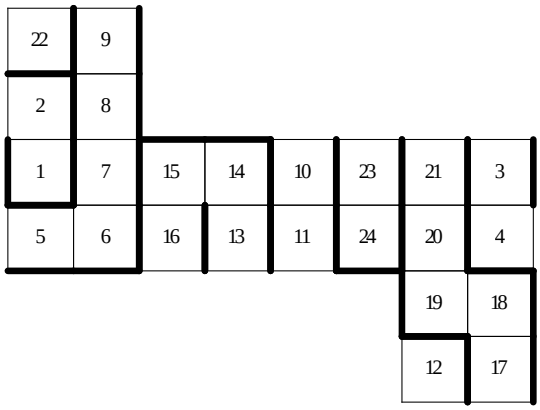
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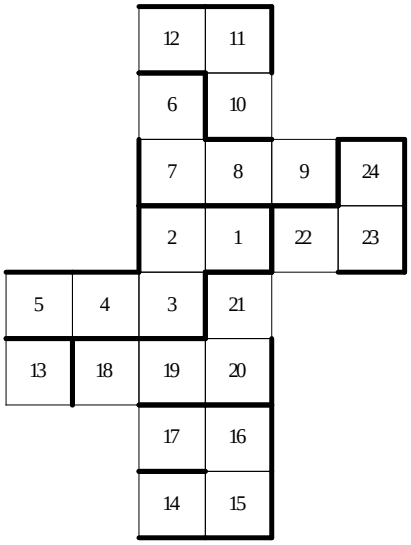




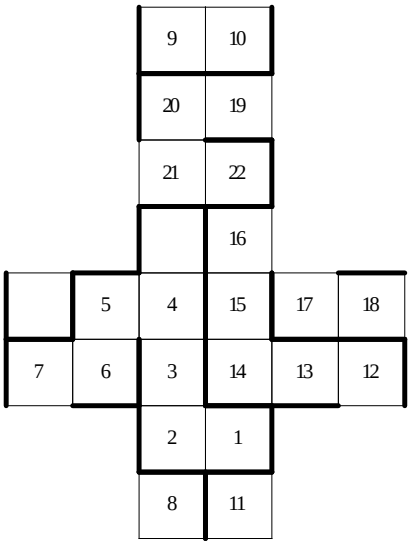


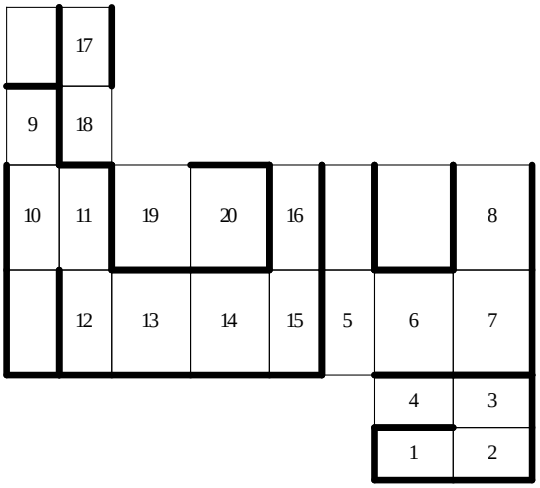


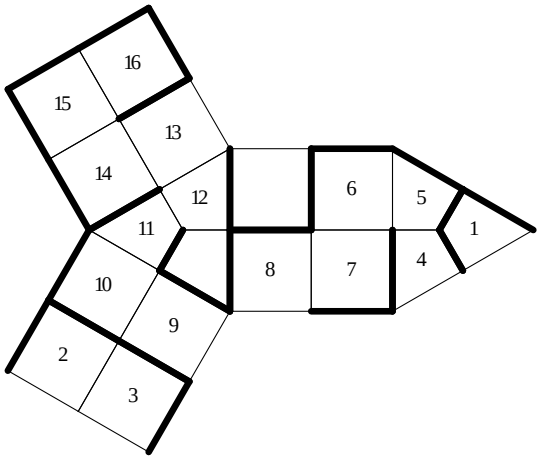


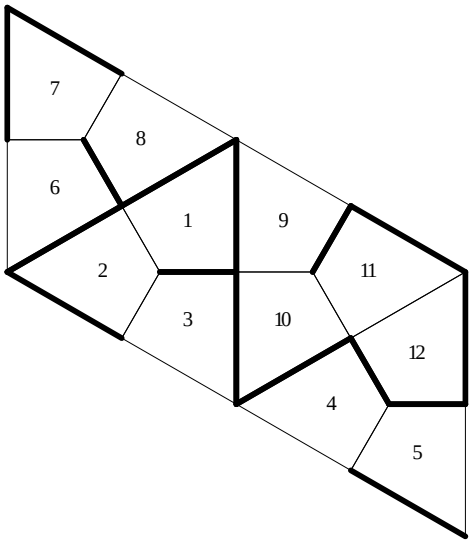


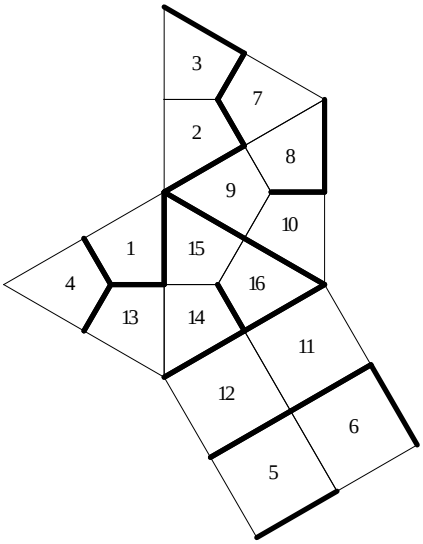
Labirinti na enostavnih poliedrih

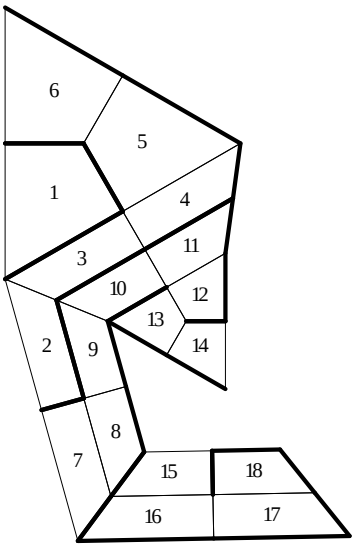












Grupe

Sličice na drugi sliki moramo zaporedoma označiti:
{14, 12, 15, 1, 13, 5, 16, 6, 10, 2, 4, 7, 8, 9, 3, 17, 11}
Linearne grupe:
a) {6, 4, 2, 3, 7, 5, 1}, {1, 7, 5, 2, 3, 6, 4}
b) {3, 7, 6, 5, 4, 2, 1}, {6, 5, 1, 2, 4, 7, 3}

Prostorska predstavljivost

a)

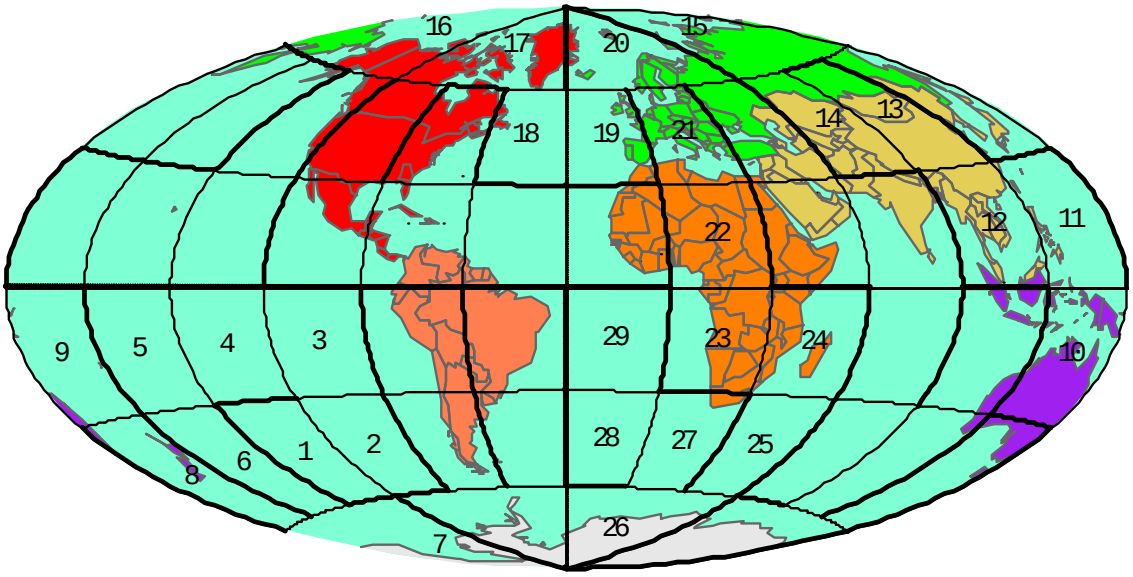
	1	2	3
1	2	5	7
2	5	8	7
3	5	10	10
4	1	8	9
5	9	10	9

b)

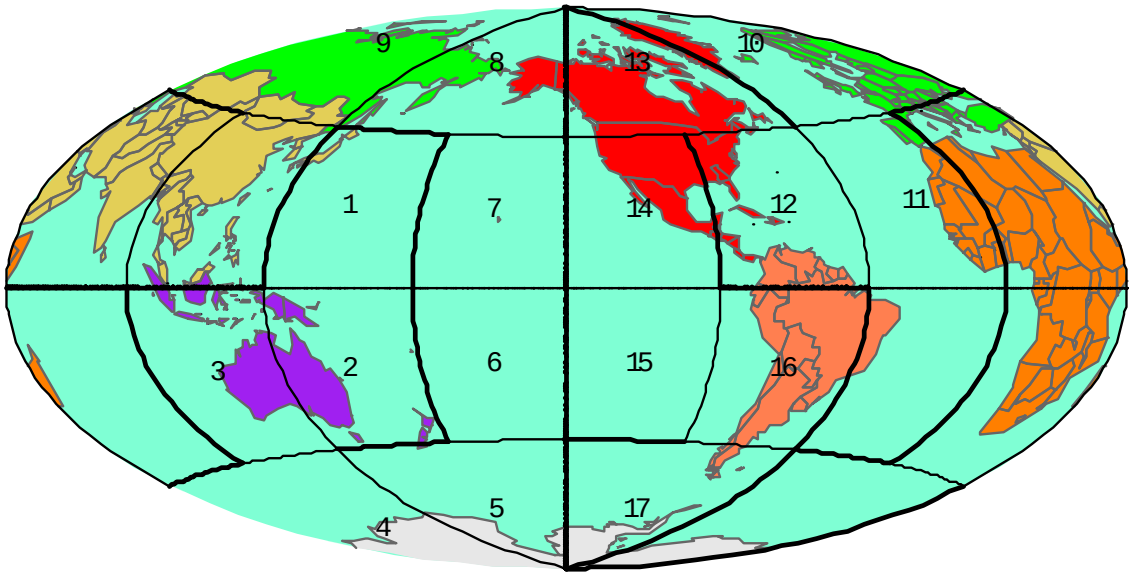
	1	2	3
1	7	6	1
2	7	5	4
3	3	3	2
4	2	2	4
5	2	6	1

Labirinti na zemljevidu

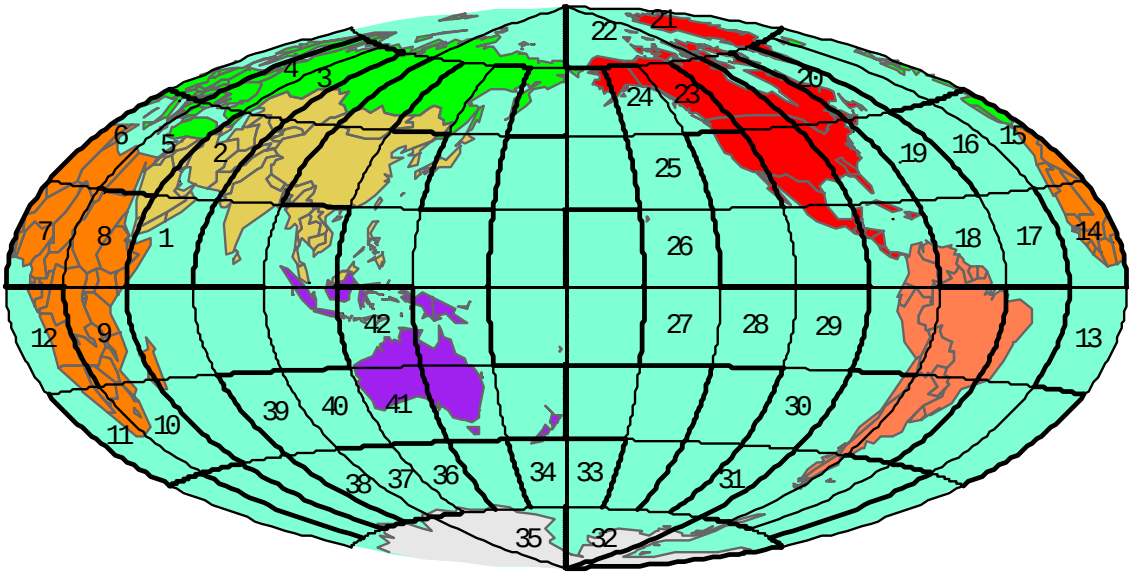
a)



b)



c)



Odstranjene kockice

59 66 59
74 76 86
71 38 91
80 54 67

Kocki določi mrežo

{3, 2, 4, 4, 1, 1}

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