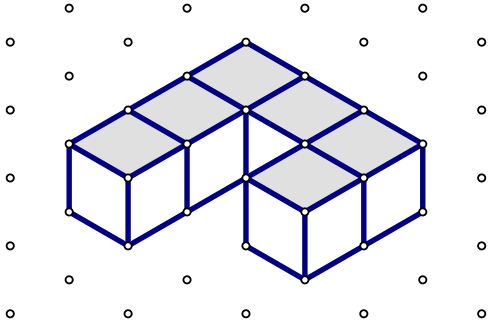
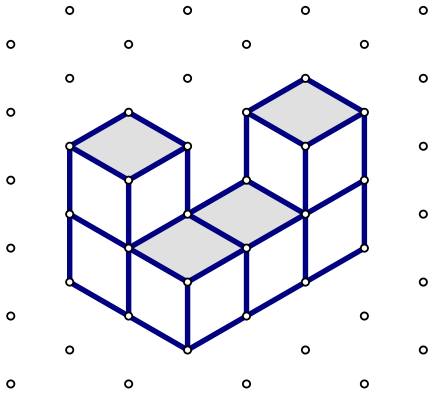
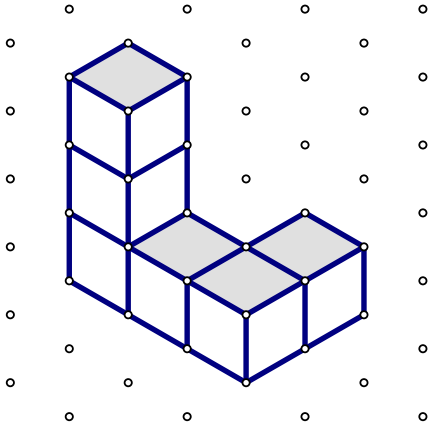




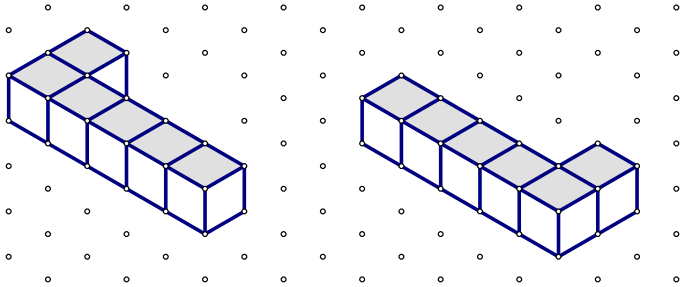
Arhitektura šest kocaka

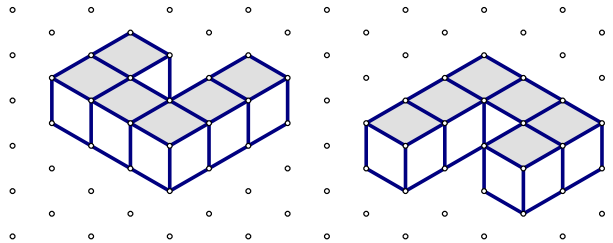


Zadatak 1.

Pomoću 6 kockica složi **sve različite** građevine **„visine 1“** i nacrtaj njihove tlocrte.

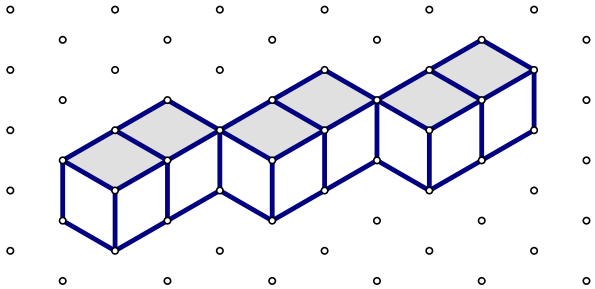
Pazi, ove građevine **ne smatramo različitima**!



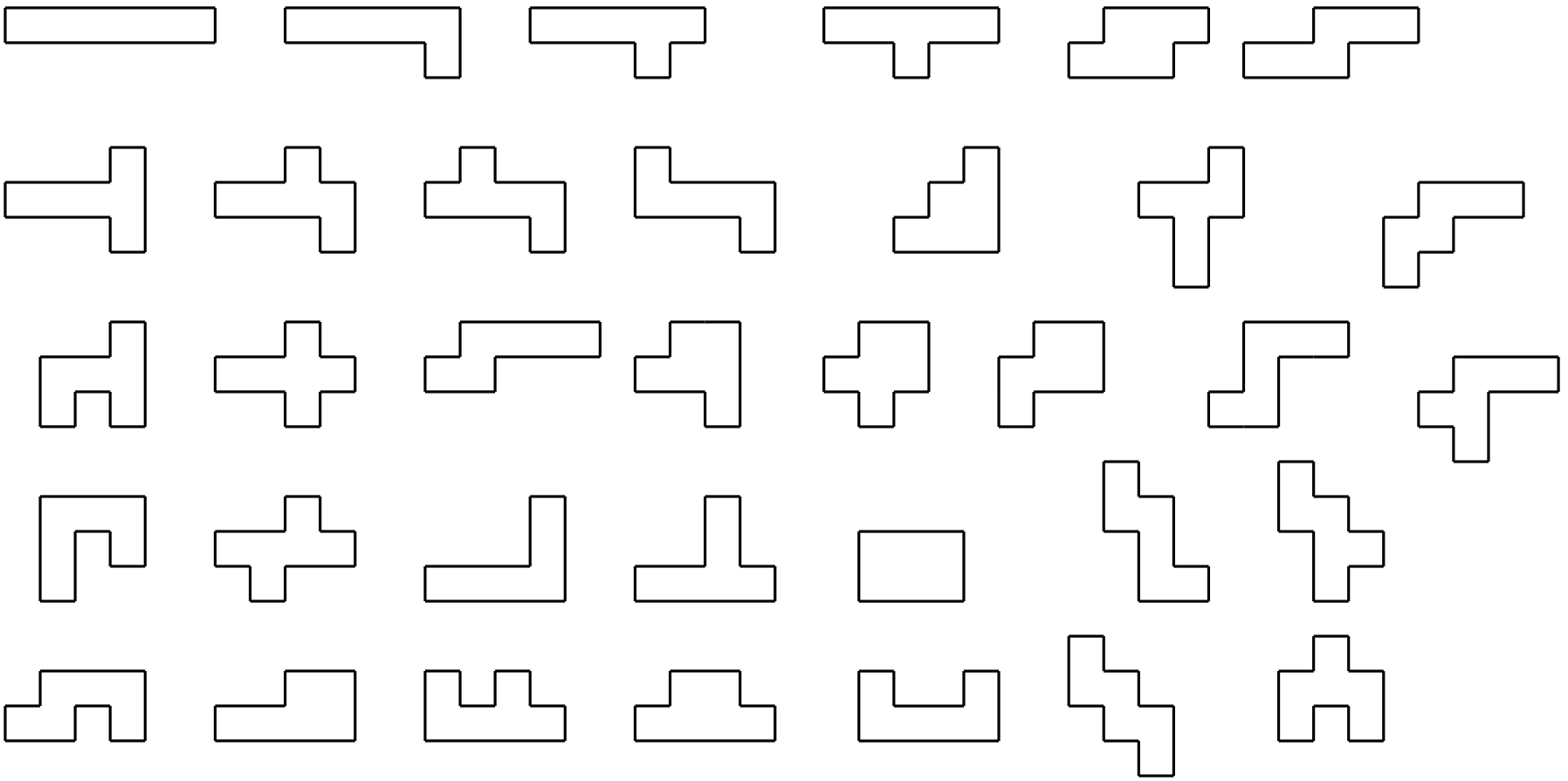


Napomena

Susjedne zgrade moraju imati „zajednički zid“, tj. **ovo ne smatramo rješenjem**!



Rješenje:



Zadatak 2.

a) Koliko tlocrta (zgrada) ima samo jednu, horizontalnu ili vertikalnu, os simetrije?

b) Koliko tlocrta (zgrada) ima „dijagonalnu“ os simetrije?

c) Postoji li tlocrt koji ima dvije osi simetrije?

d) Koliko je tlocrta (zgrada) osnosimetrično?

e) Postoji li tlocrt koji je centralnosimetričan?

f) Postoje li tlocrti koji nisu simetrični?

Rješenje:

a) Koliko tlocrta ima samo jednu, horizontalnu ili vertikalnu, os simetrije? (šest, crveni i žuti)

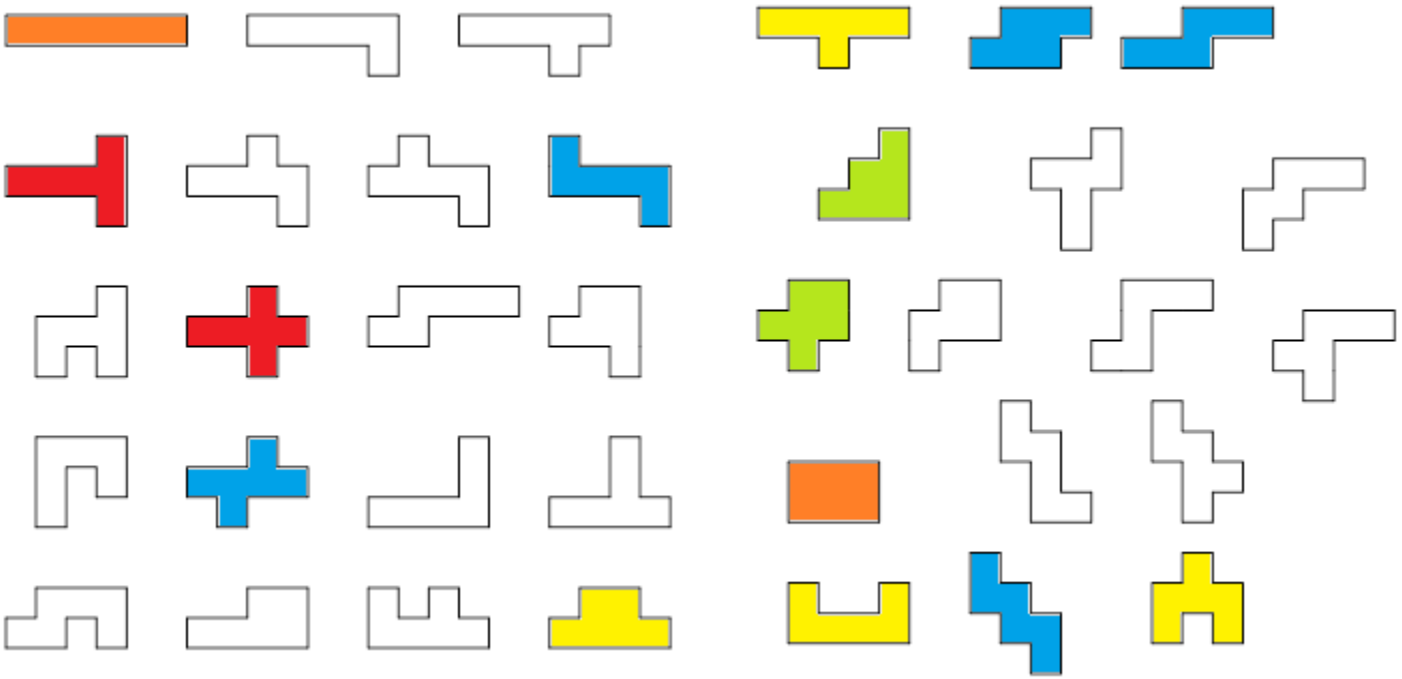
b) Koliko tlocrta ima „dijagonalnu“ os simetrije? (dva, zeleni)

c) Postoji li tlocrt koji ima dvije osi simetrije? (dva, narančasti)

d) Koliko je tlocrta (građevina) osnosimetrično? (deset)

e) Postoji li tlocrt koji je centralnosimetričan? (pet, plavi)

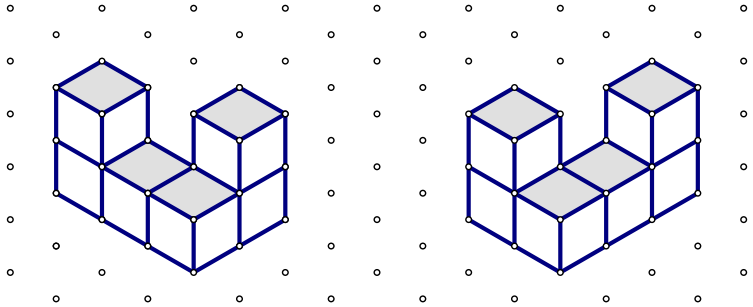
f) Postoje li tlocrti koji nisu simetrični? (20, bijelih)



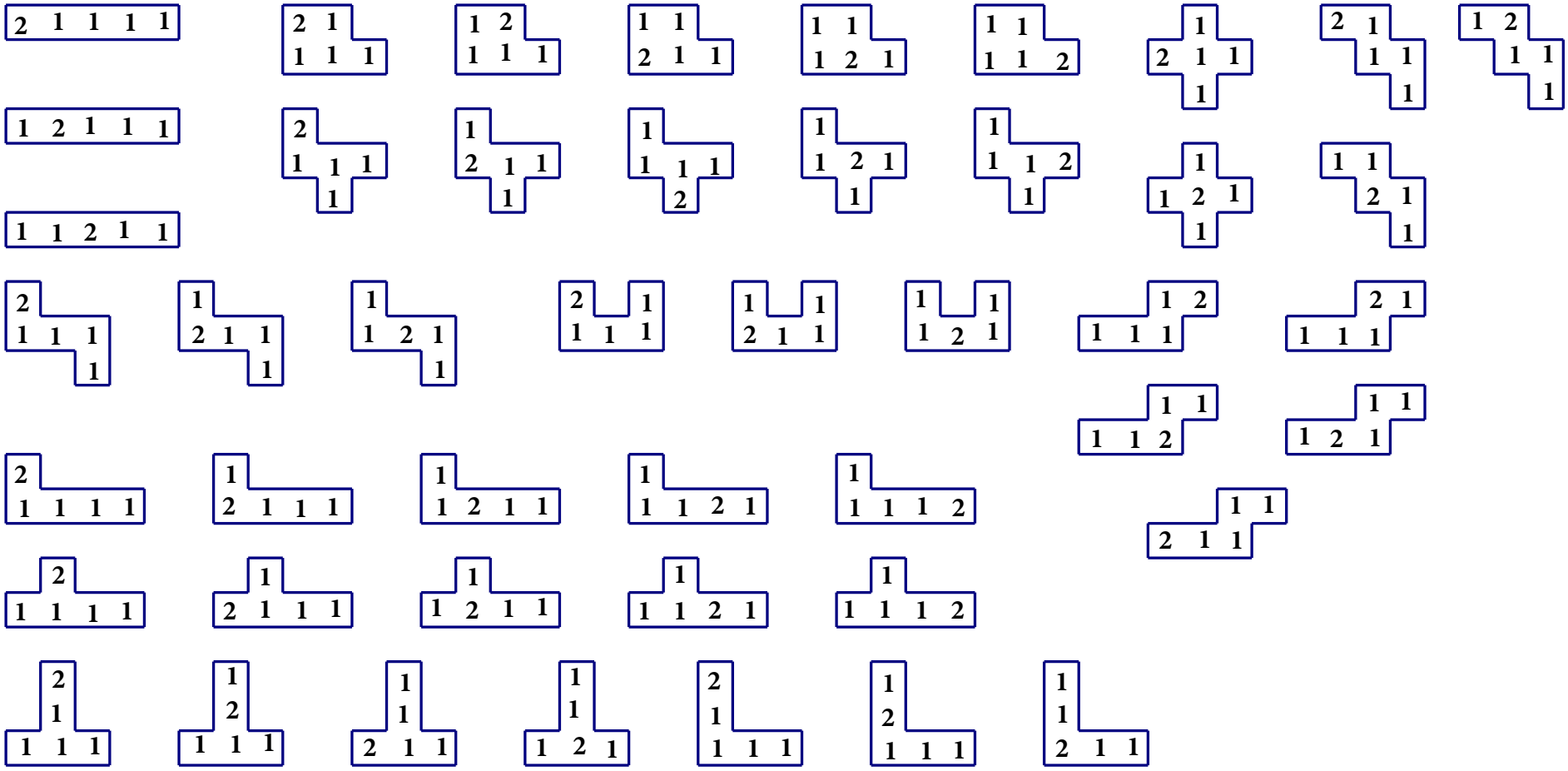
Zadatak 3.

Pomoću 6 kockica složi sve različite „dvokatnice“ u kojima je **bar jedan blok „visine 2“**. Nacrtaj njihove „planove gradnje“ (tlocrte s upisanom visinom).

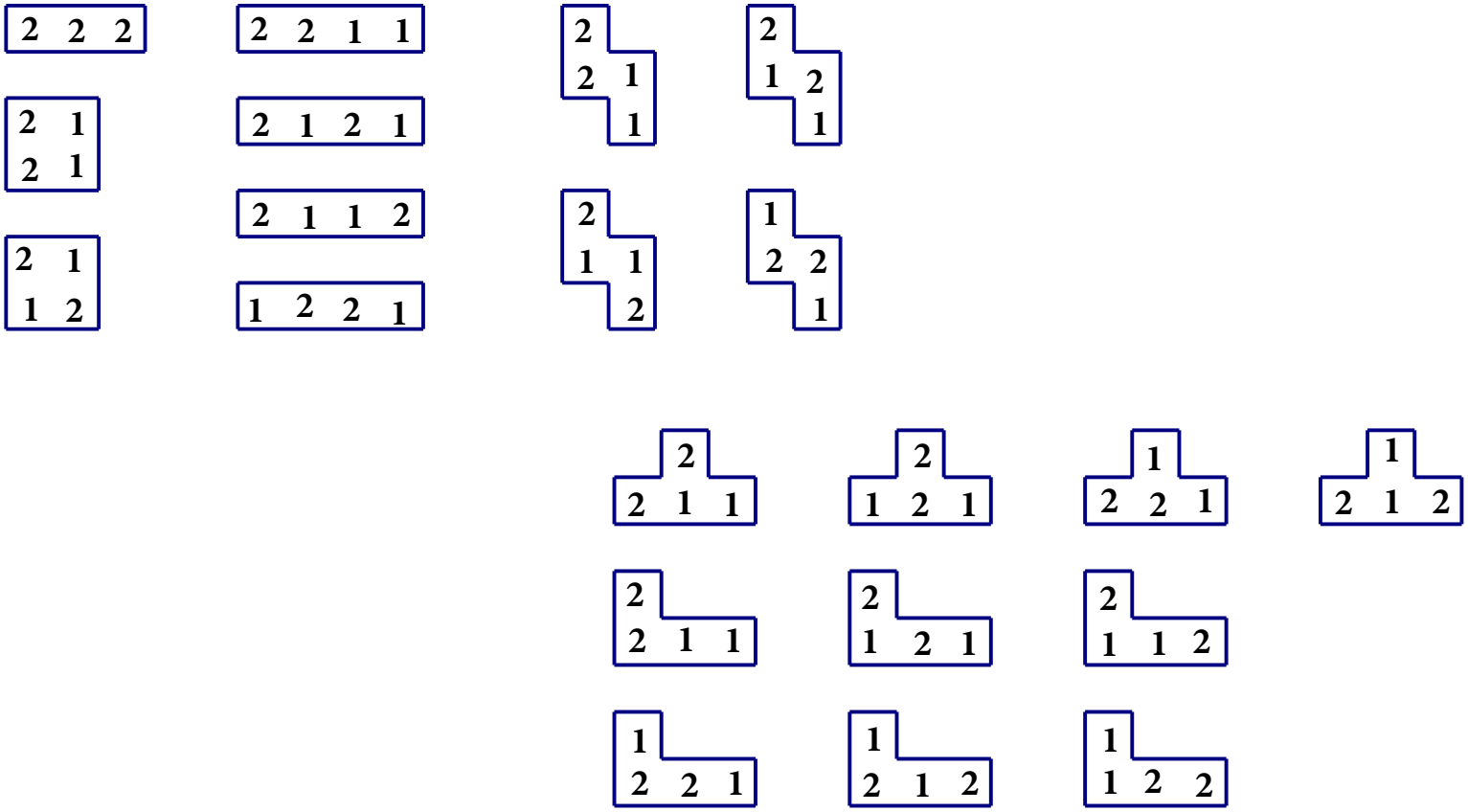
Pazi, ove građevine **ne smatramo različitima**!



Rješenje: tlocrt površine 5



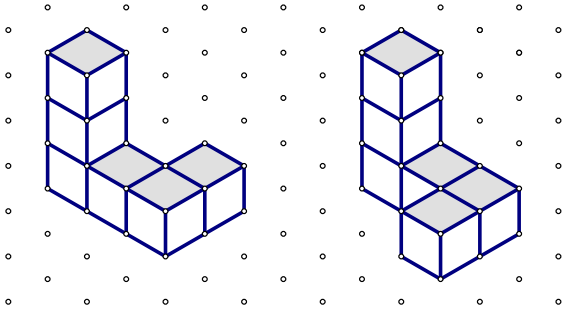
Rješenje: tlocrt površine 3 ili 4

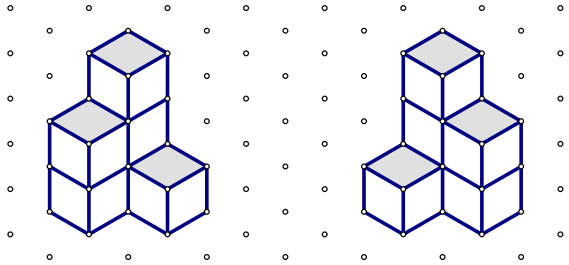


Zadatak 4.

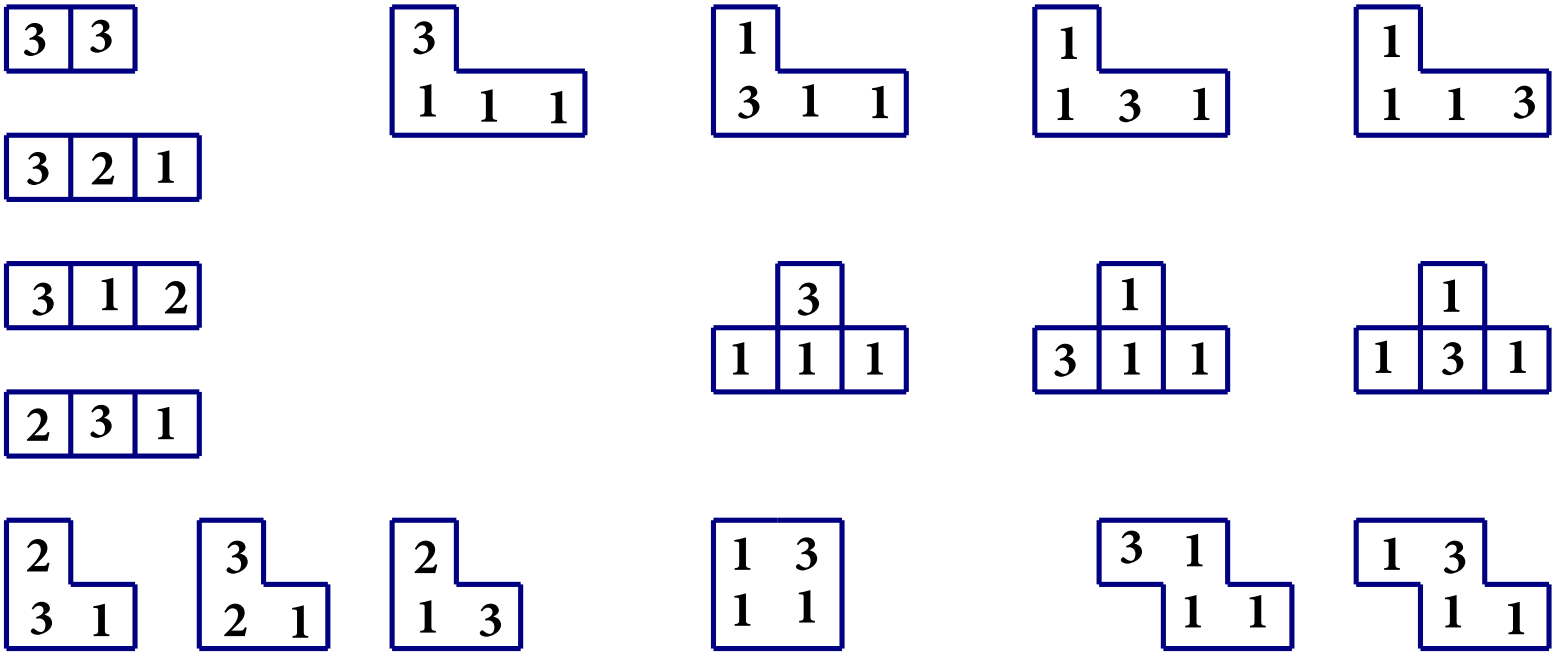
Pomoću 6 kockica složi sve različite „trokatnice“ u kojima je **bar jedan blok „visine 3“**. Nacrtaj njihove „planove gradnje“ (tlocrte s upisanom visinom).

Pazi, ove građevine **ne smatramo različitima**!





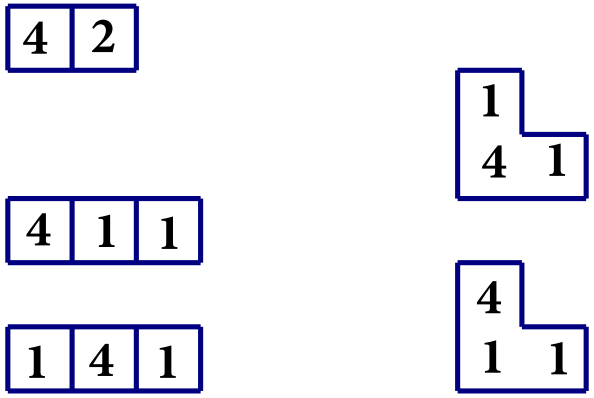
Rješenje: tlocrt površine 2, 3 ili 4



Zadatak 5.

Pomoću 6 kockica složi sve različite građevine u kojima je **jedan blok „visine 4“**. Nacrtaj njihove „planove gradnje“ (tlocrte s upisanom visinom).

Rješenje: tlocrt površine 2 ili 3



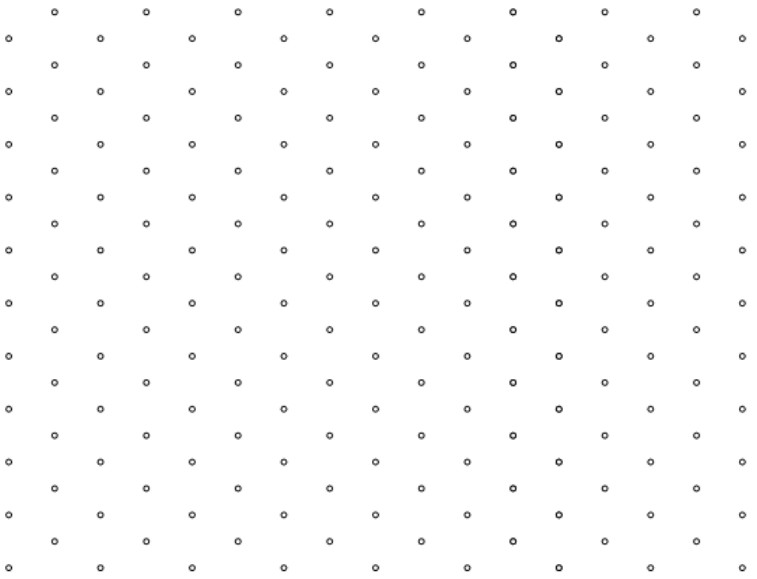
Zadatak 6.

Pomoću 6 kockica složi sve različite građevine u kojima je **jedan blok „visine 5“** ili **„visine 6“**. Nacrtaj njihove „planove gradnje“ (tlocrte s upisanom visinom).

Rješenje:

Nadogradnja

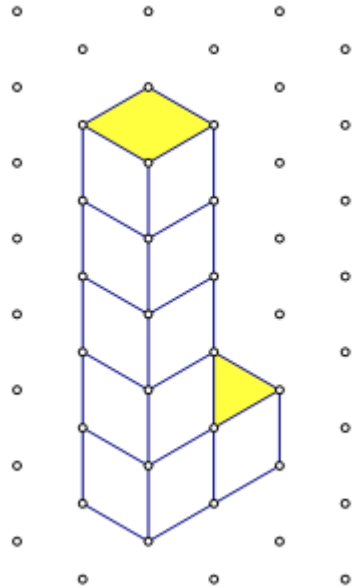
U trokutastoj mreži točaka nacrtaj kosu projekciju nekih „višekatnica” sastavljenih od 6 sukladnih kocaka.

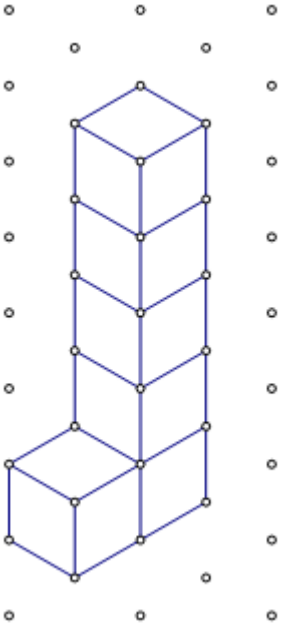


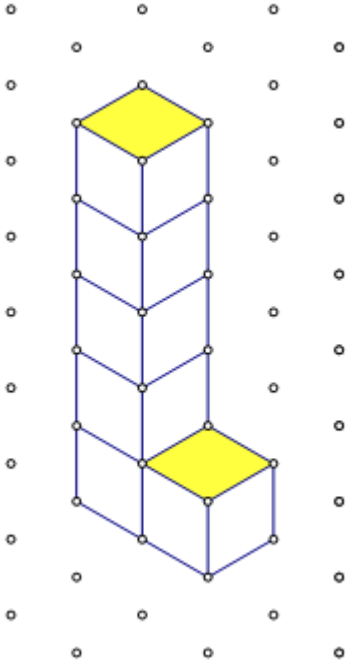
NEKA UČENIČKA RJEŠENJA

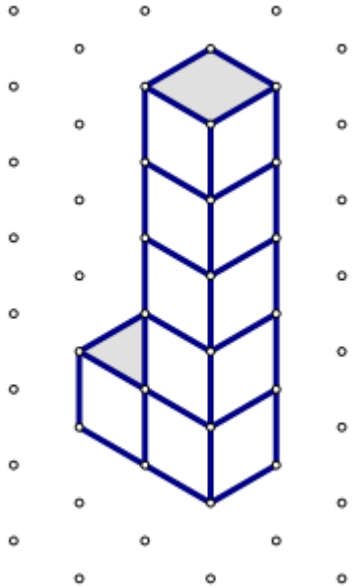
Isti tlocrt, „različite” zgrade

5	1



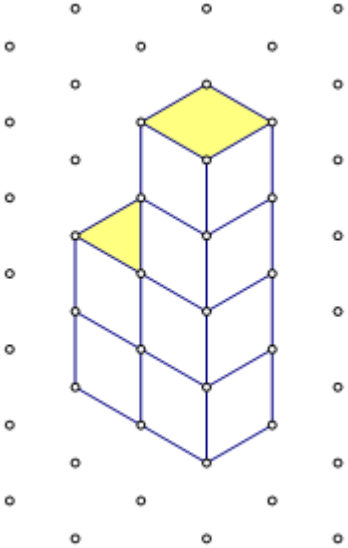


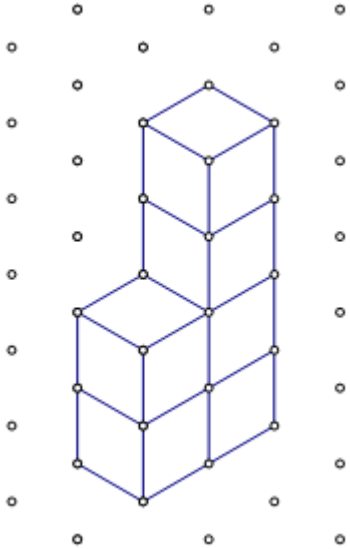


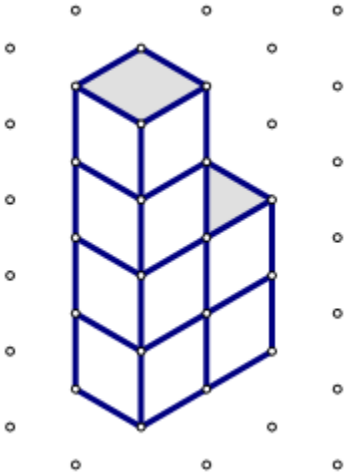


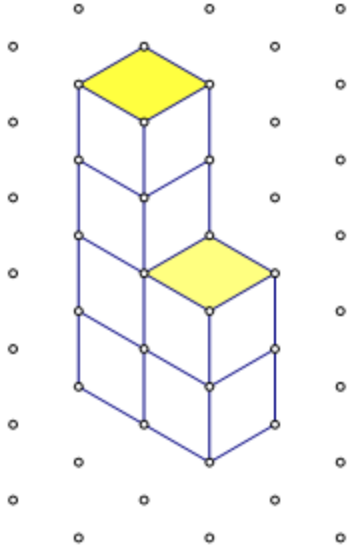
Različite ili samo „različite” zgrade??

4	2









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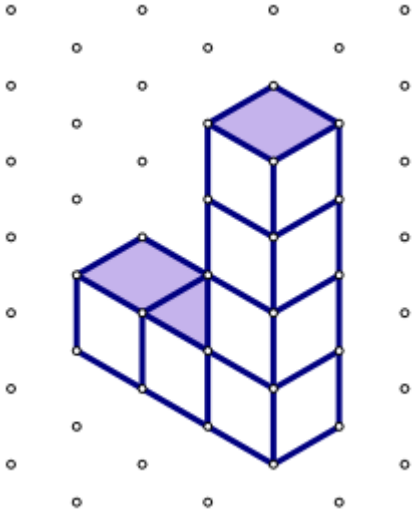

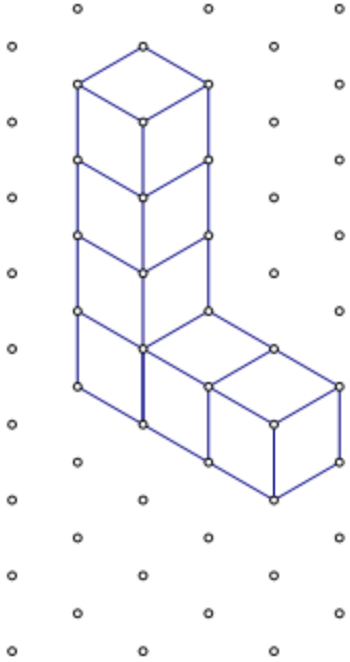

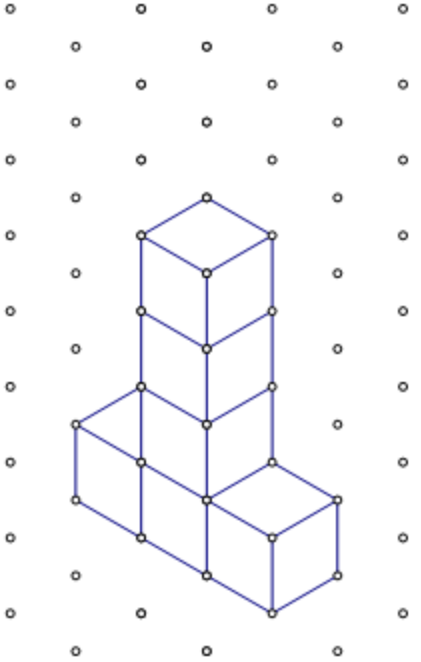

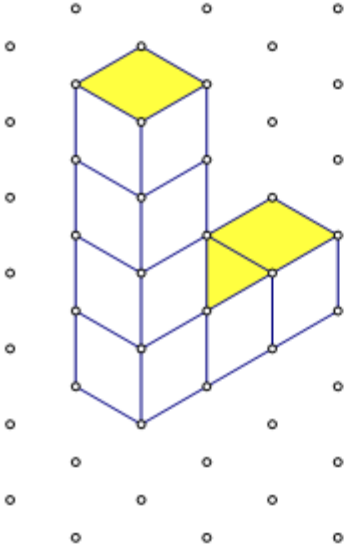

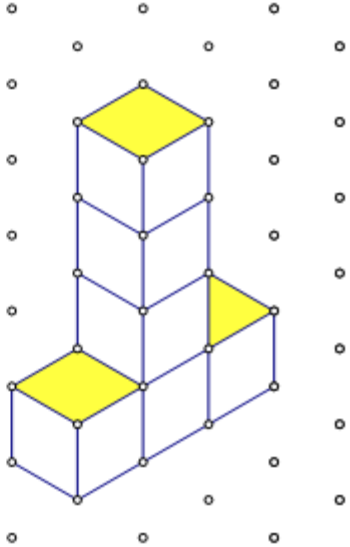

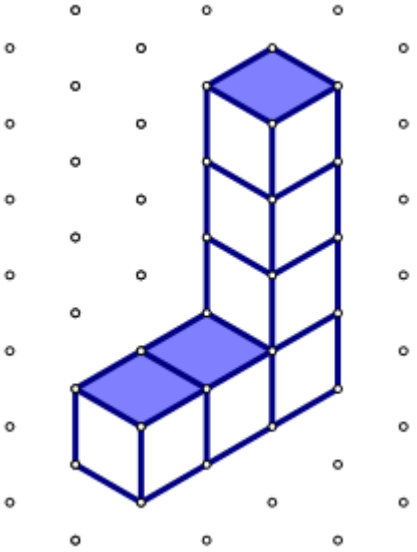

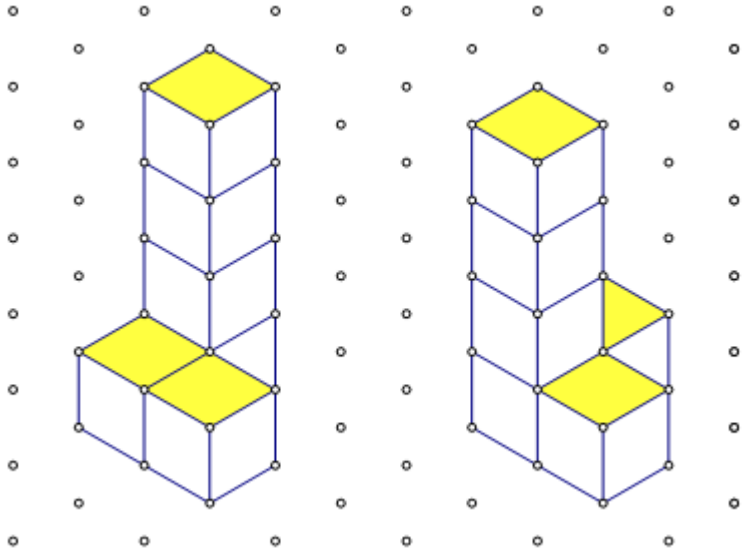

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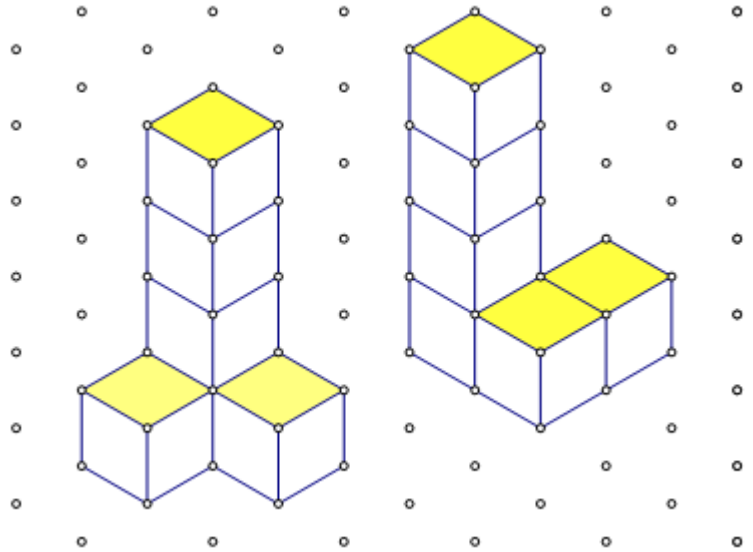
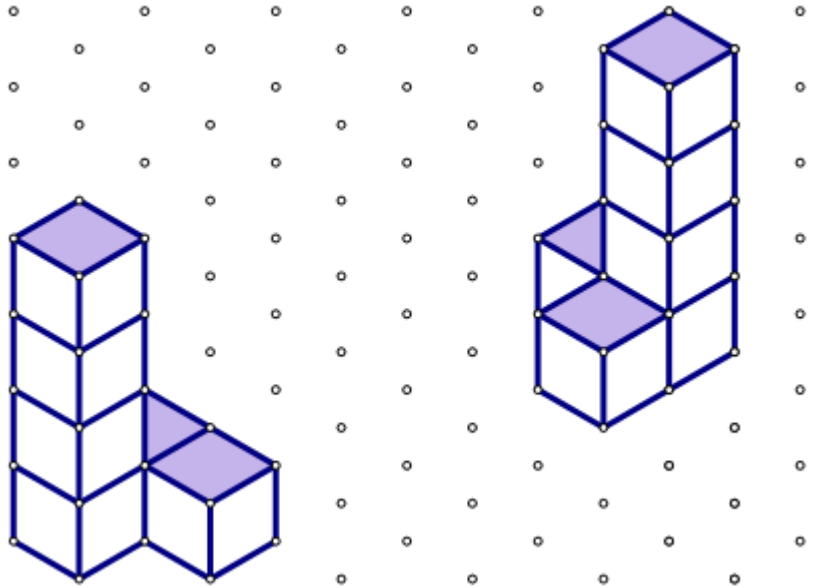
4	1

4	
1	1





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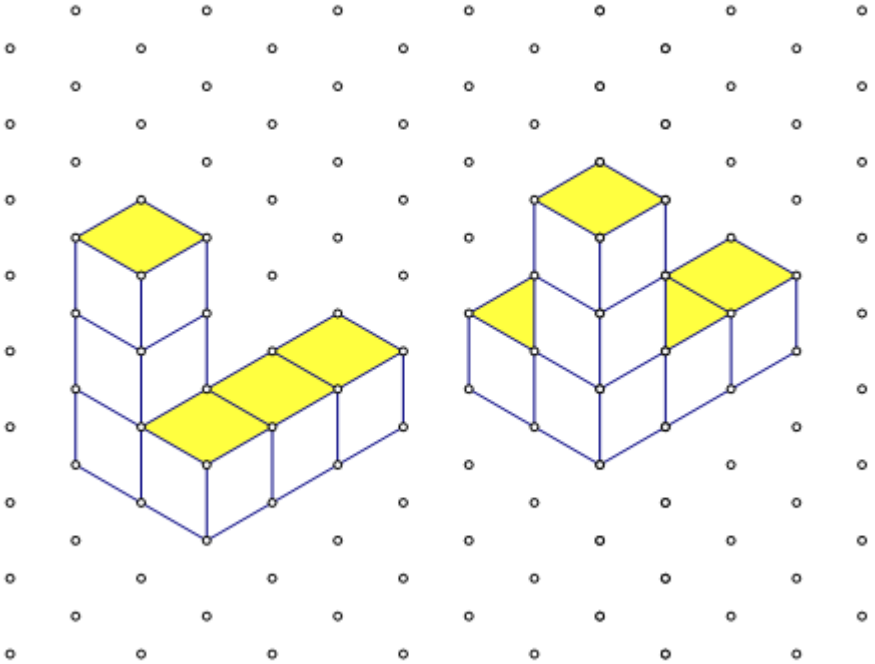

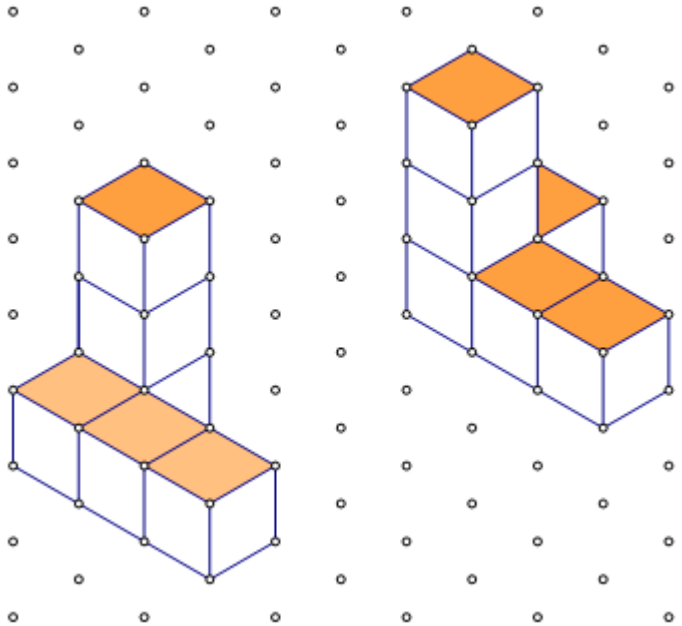

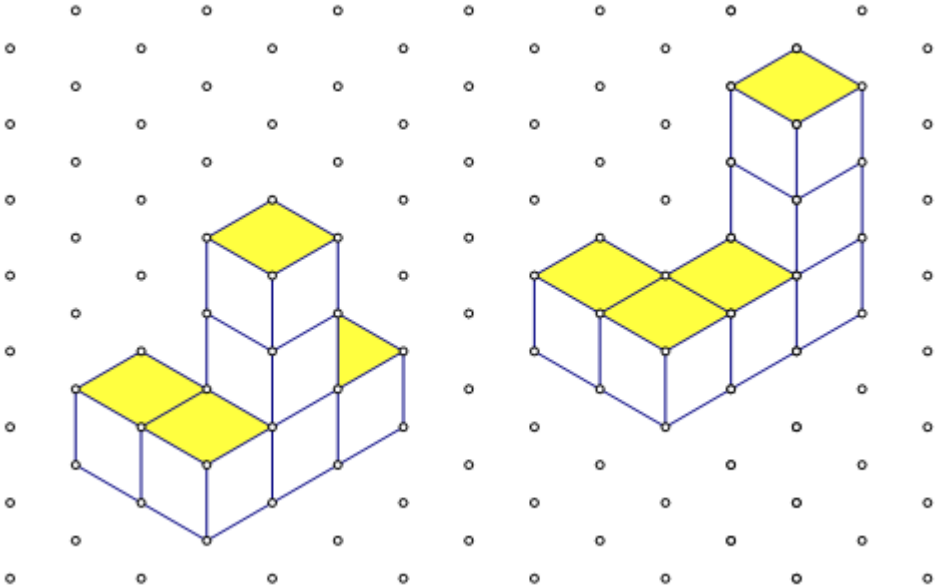

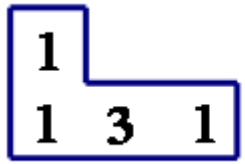
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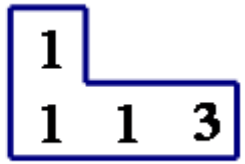
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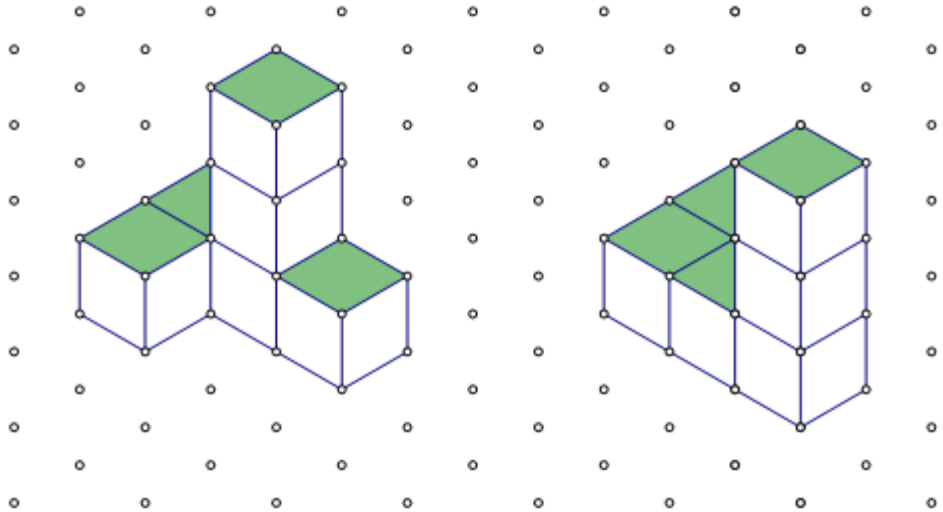

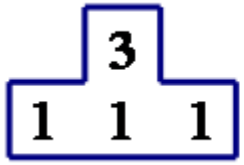
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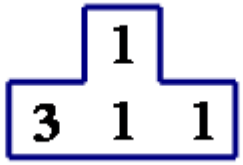
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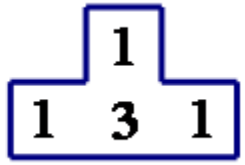
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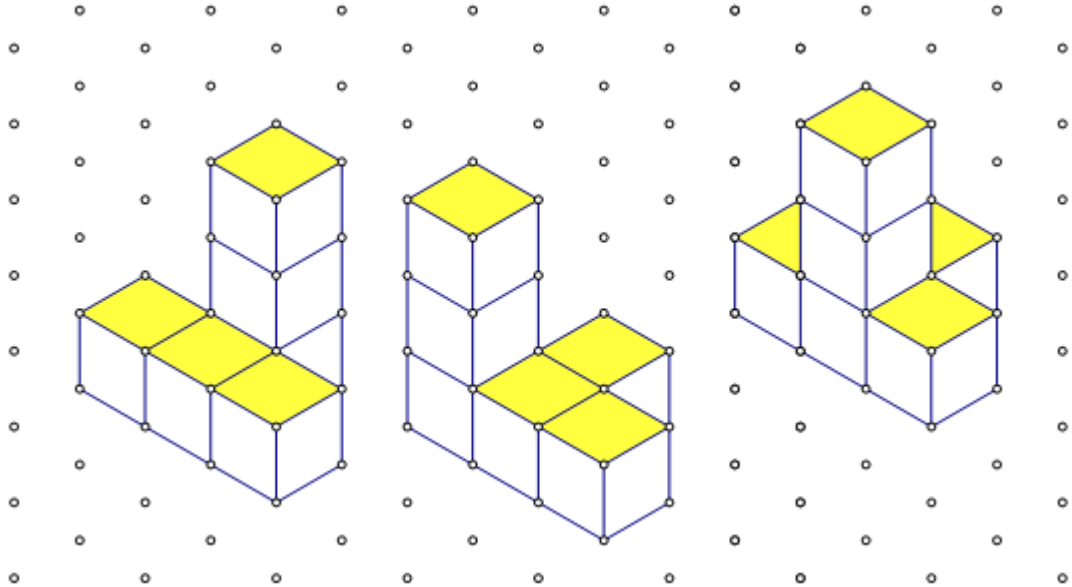

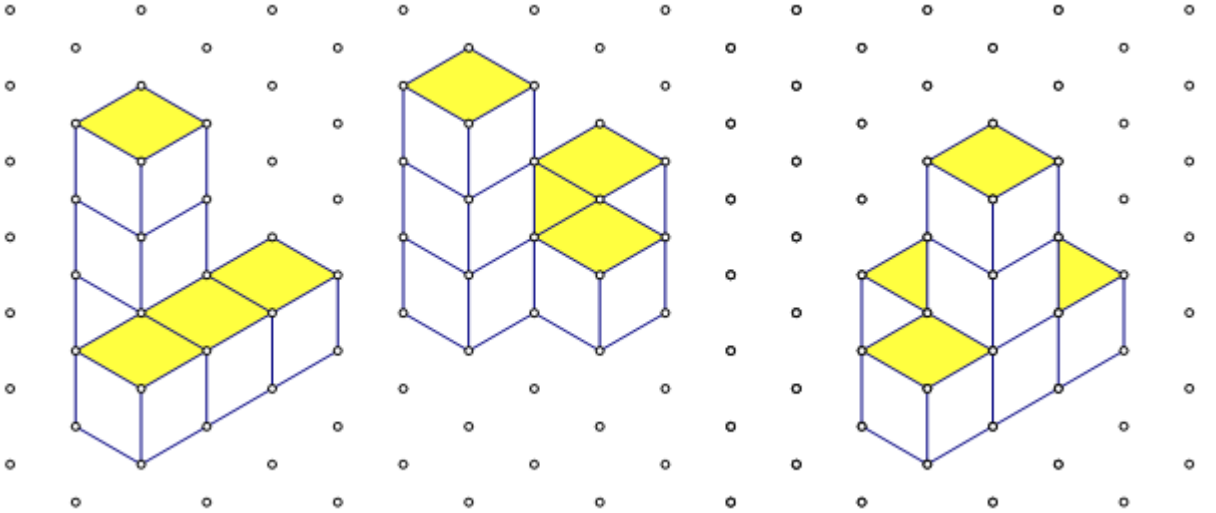

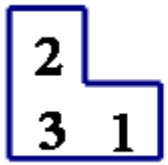
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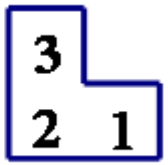
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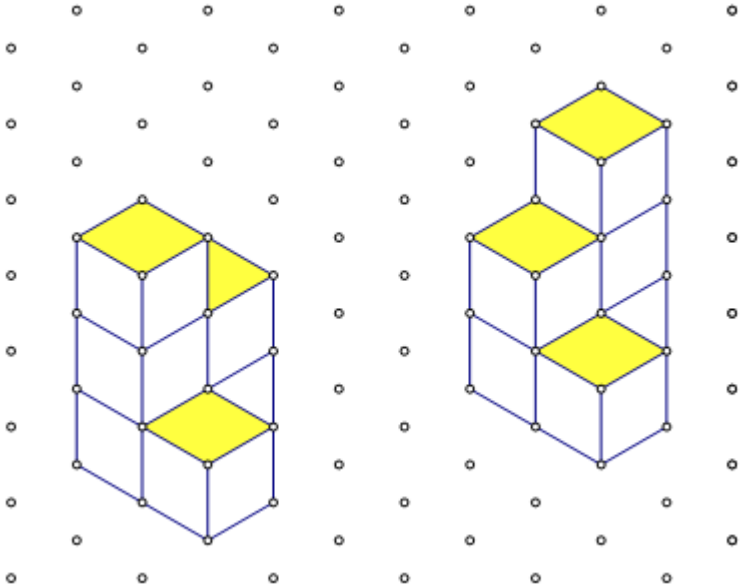
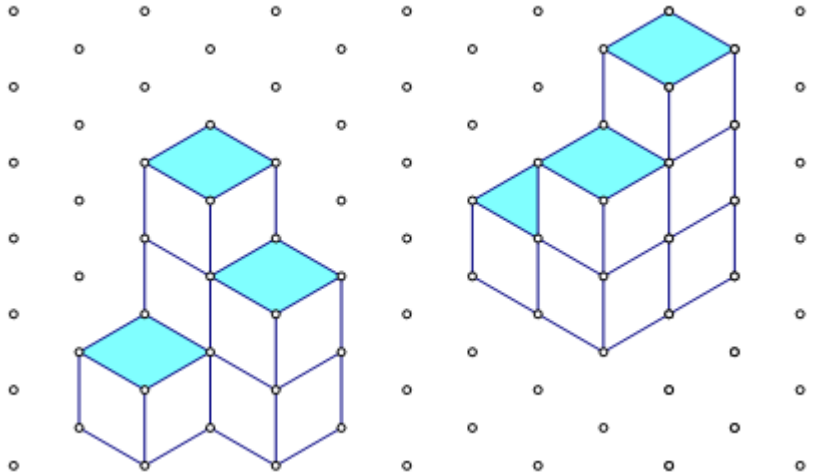
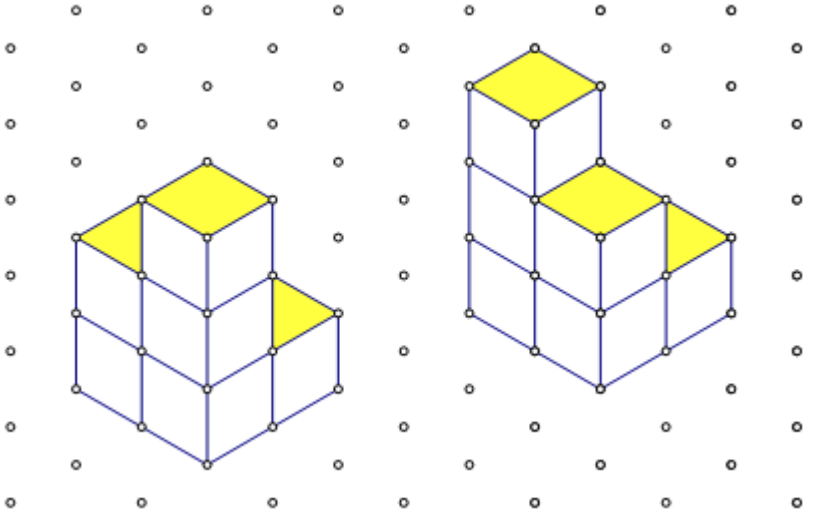
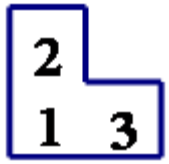
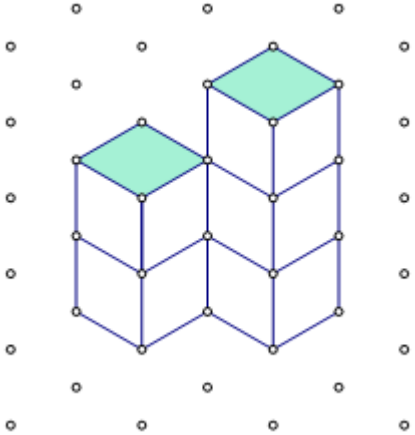


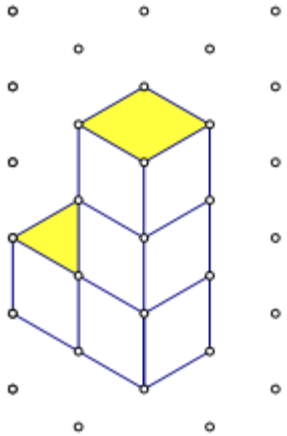


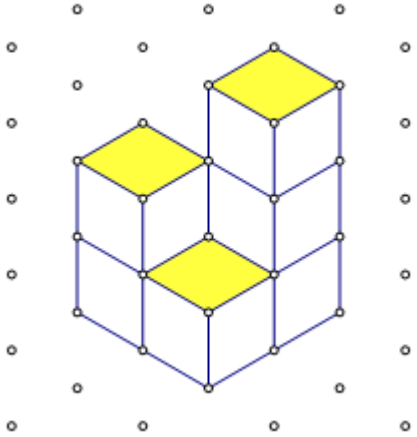


A što sad?





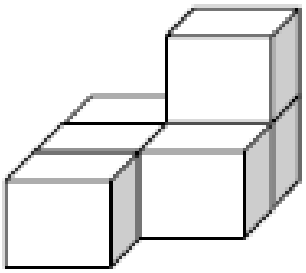


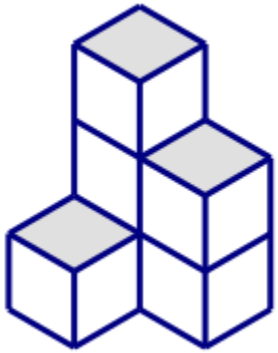


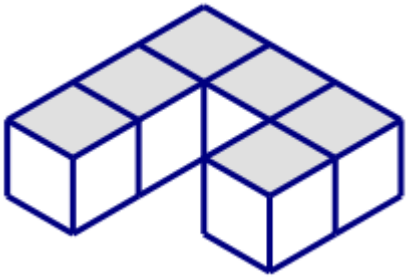
Koji je prikaz „vjerodostojniji”?

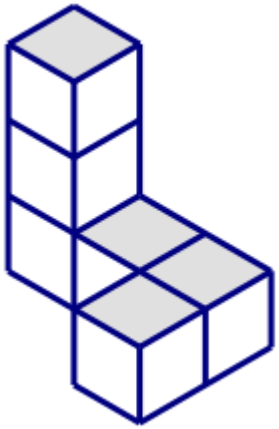
NADOGRADNJA – OPLOŠJE TIJELA

Na slici su neka tijela sastavljena od 6 kocaka. Kolika su njihova oplošja?



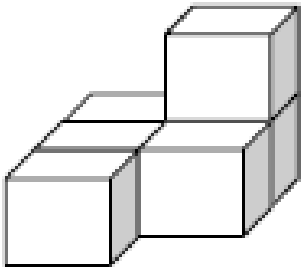


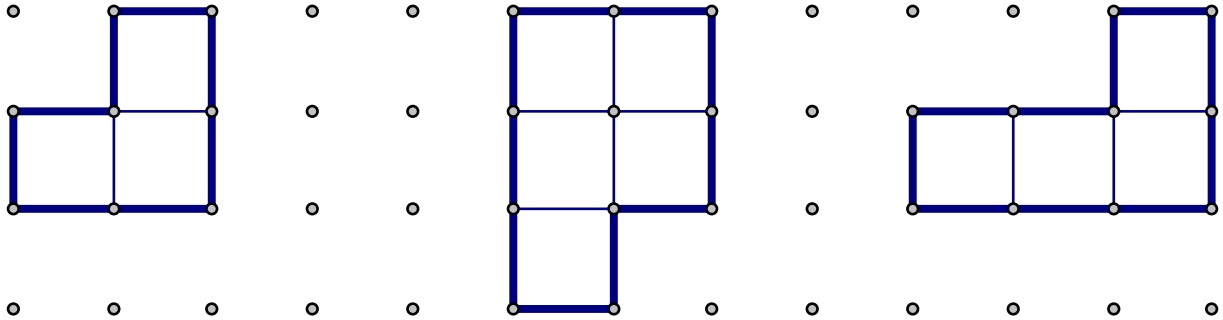




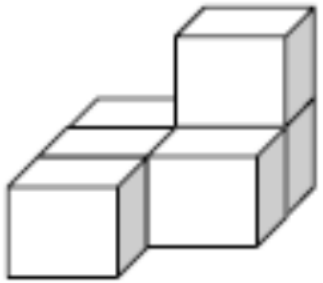
U rješavanju pomažu „pogledi” na tijela (tlocrt, nacrt i bokocrt)

Da bismo izračunali oplošje, pomoći će nam nacrtani pogledi na tijelo.
Odredit ćemo broj vidljivih kvadrata u pojedinom pogledu.

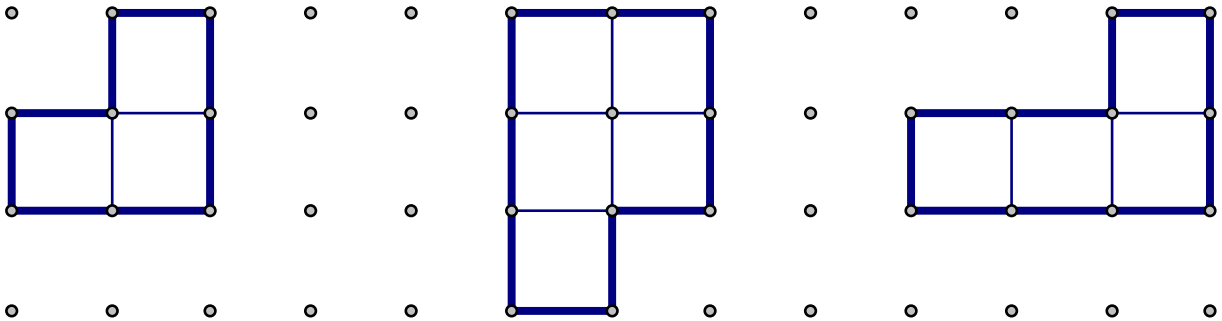




sprijeda: 3 odozgo: 5 zdesna: 4

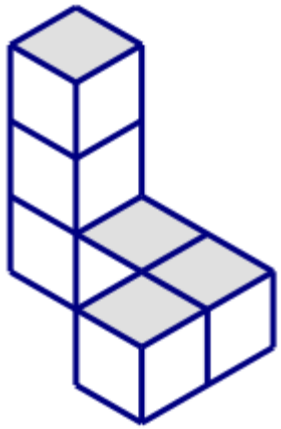


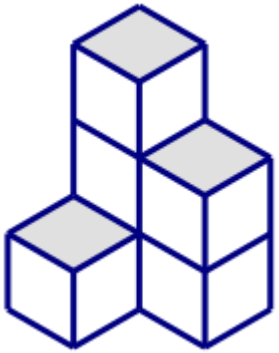
- Što je oplošje?
- Kako pogledi pomažu u određivanju oplošja?
- Koliko je oplošje ovog tijela?



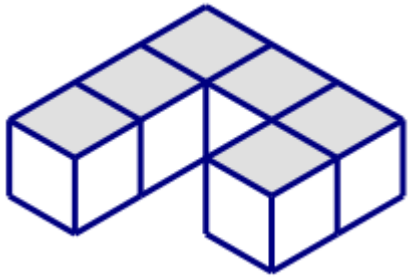
- O = (3 + 5 + 4) · 2 = 24 (kvadratića)

Slično postupamo i dalje





I dalje?



Oprez!
Ova tijela imaju „rupu”!

Svi kvadrati nisu vidljivi!

Otvaraju se nova pitanja…

Iz primjera zaključujemo da sva tijela volumena 6 nemaju jednako oplošje.

- Koliko je najmanje oplošje takvog tijela?
- „Sagradi” neko tijelo minimalnog oplošja
- Koliko je najveće oplošje takvog tijela?
- „Sagradi” neko tijelo maksimalnog oplošja.
- „Sagradi” dva različita tijela jednakih oplošja.
- …