Sveučilište u Zagrebu

Arhitektonski fakultet

srpanj 2022.

Dodatna provjera znanja, vještina i sposobnosti
Test 1:
Provjera sposobnosti percepcije prostora

Upute i napomene pristupnicima:

LISTOVE SA ZADACIMA možete koristiti za skiciranje, rješavanje zadataka i bilježenje rješenja. Oni se neće ispravljati niti bodovati. Kad ste gotovi, rješenja označite na LISTU ZA ODGOVORE. Rješenja se označavaju križanjem odgovarajućih slova ili brojki, ovako:

Zadatak 0

0 bodova

A	B	C	X	E	F

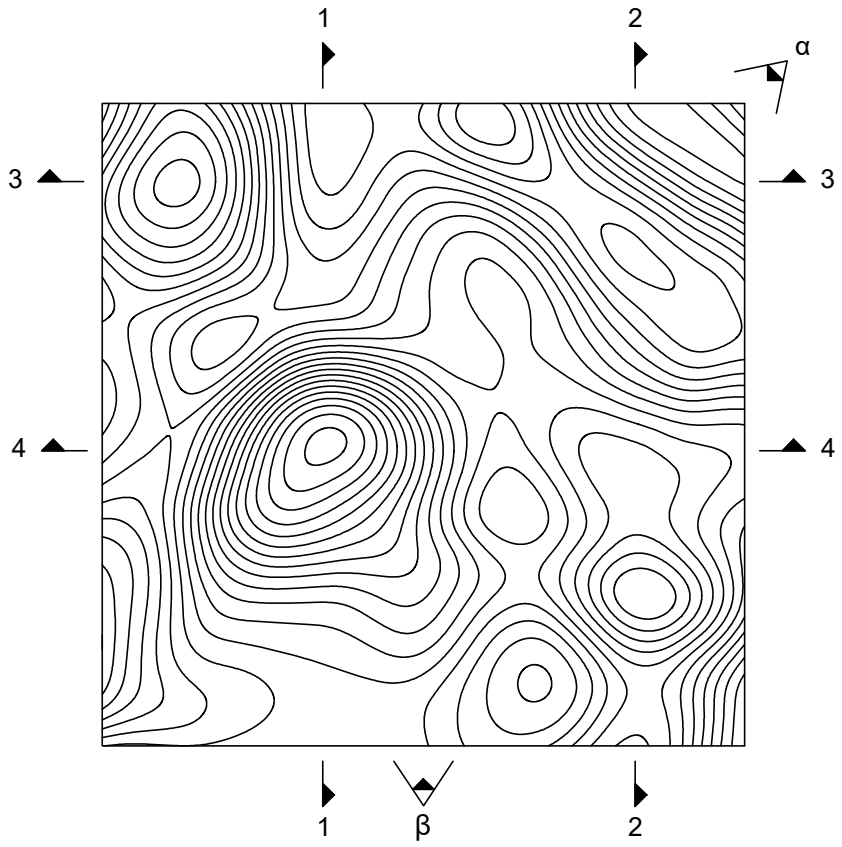
Na LISTU ZA ODGOVORE koristite kemijsku olovku, obavezno ispunite odgovore na sva pitanja i nemojte ispravljati odgovore. Osim odgovora na pitanja, LIST ZA ODGOVORE ne smije sadržavati druge bilješke ili skice. U suprotnom neće se priznavati bodovi. Uza svaki zadatak naznačen je ukupan broj bodova za točno riješen cijeli zadatak. U testu nema negativnih bodova.

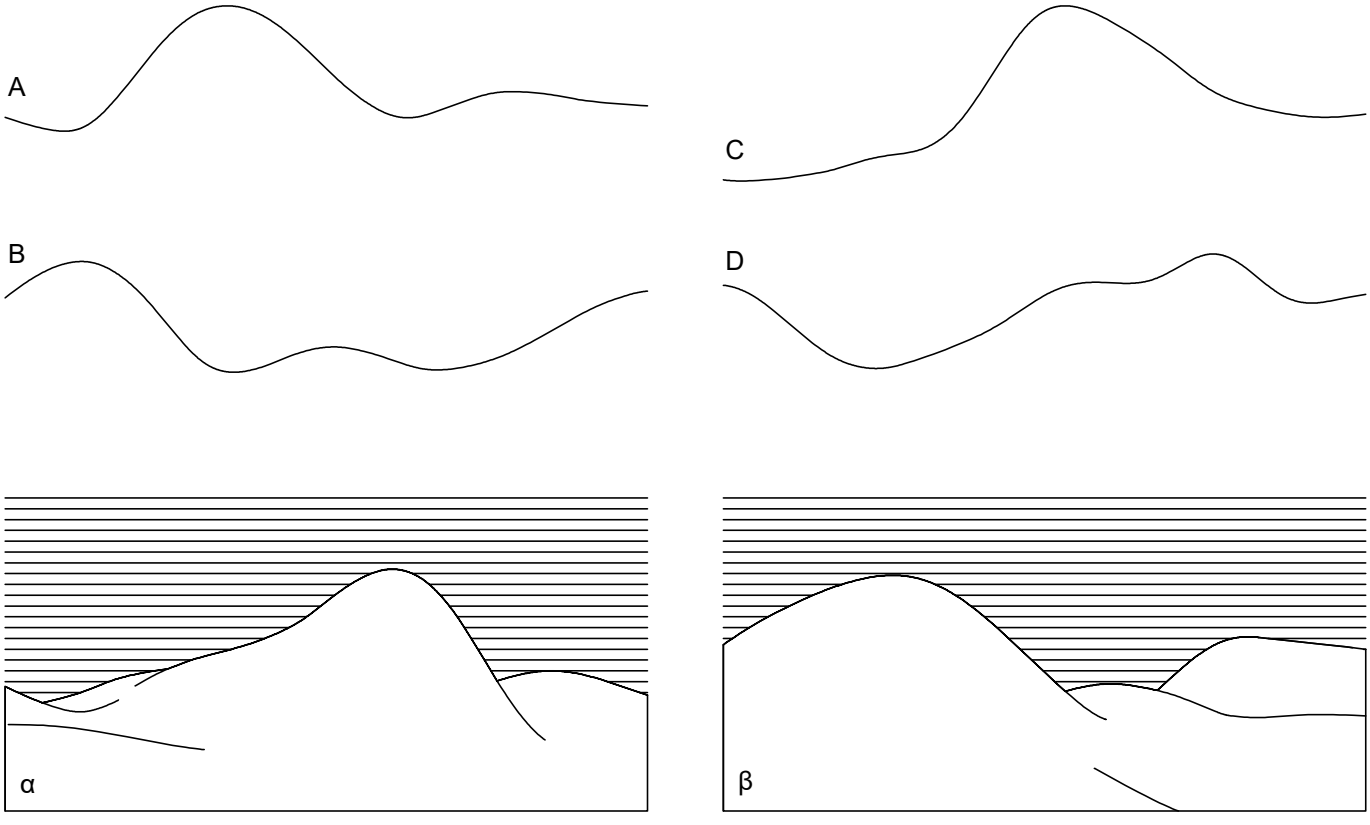
Maksimalan broj bodova: 200
Trajanje: 90 minuta

Zadatak 1 20 bodova

Na crtežu je izohipsama* prikazana topografija zamišljenog terena. Na istom crtežu brojevima i smjerom označene su pozicije presječnica. Na listu za odgovore pridružite presječnice (A, B, C, D) njihovim pozicijama (1, 2, 3, 4)

Napomena: za pomoć su na dnu lista nacrtani perspektivni prikazi terena iz smjera α i β.

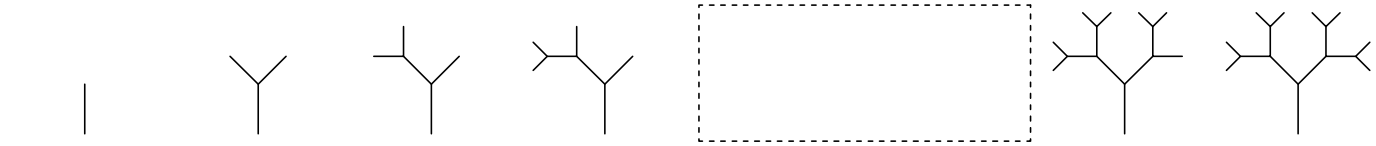




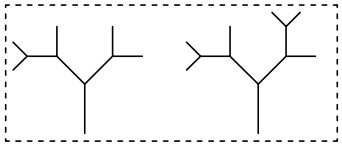
** izohipsa je zamišljena krivulja koja povezuje mjesta iste visine*

Zadatak 2 15 bodova

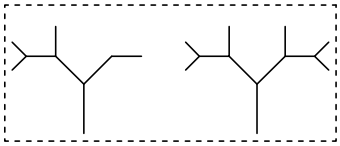
2.1. Na listu za odgovore označite koji par elemenata nedostaje u nizu.



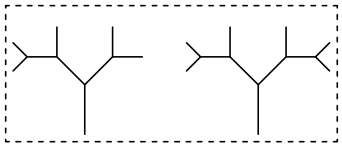
A



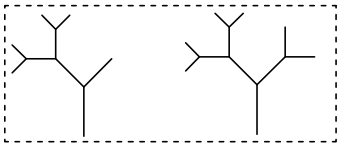
B



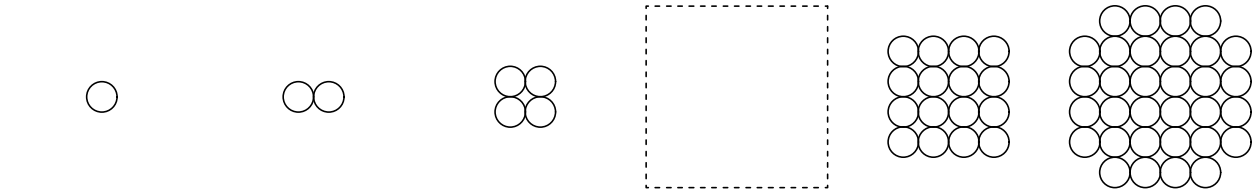
C



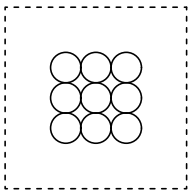
D



2.2. Na listu za odgovore označite koji element nedostaje u nizu.



A



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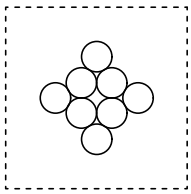

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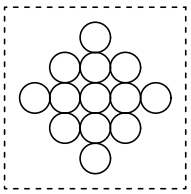

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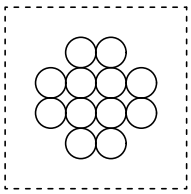
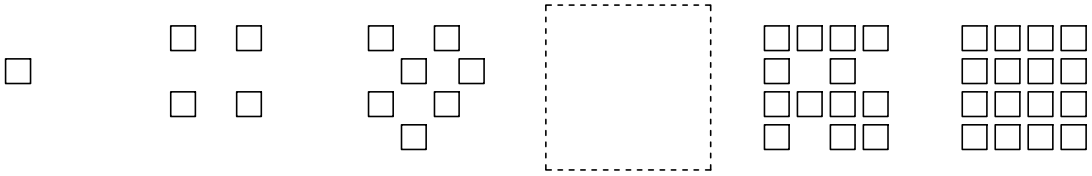
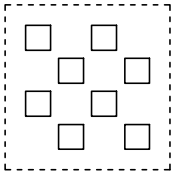


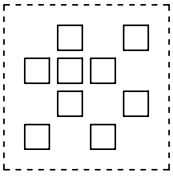
2.3. Na listu za odgovore označite koji element nedostaje u nizu.



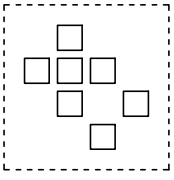
A



B



C



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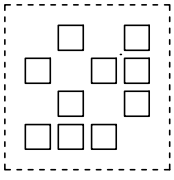
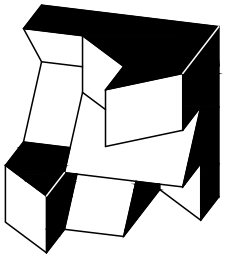
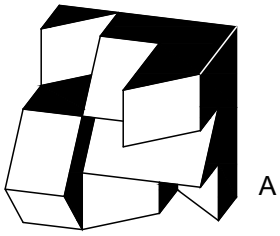
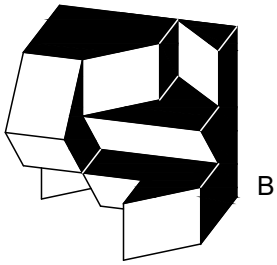


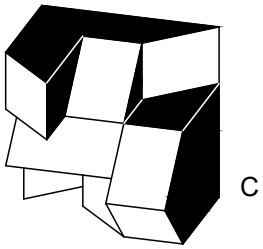
Zadatak 3 15 bodova

Od ponuđenih tijela (A, B, C) odaberite ono koje će spajanjem sa zadanim tijelom (X) stvoriti kocku. Ispravno rješenje označite na listu za odgovore.



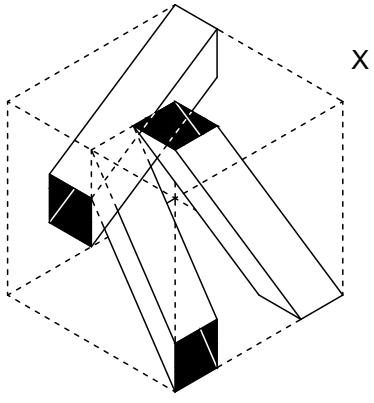


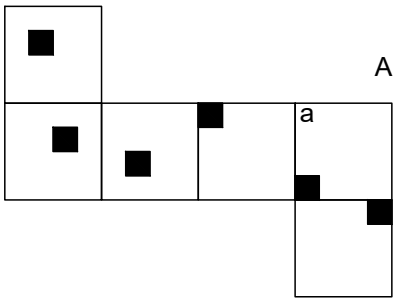


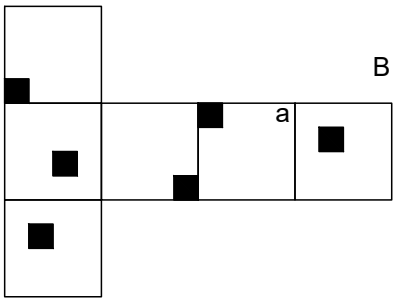


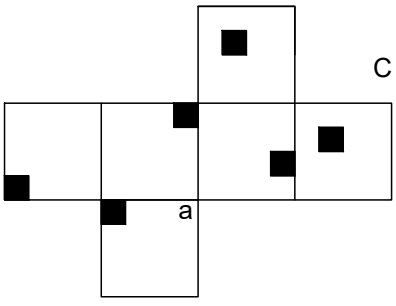
Zadatak 4 20 bodova

Kocka (X) probodena je sklopom od tri cijevi koje prolaze nasuprotnim stranicama kocke. Probodišta na oplošju kocke su kvadrati obilježeni crnom bojom. Od ponuđenih razvijenih oplošja promatranih izvana (A, B, C) izbacite ono koje ne odgovara zadanoj kocki. Ploha koja leži na zamišljenom podu obilježena je sa 'a'. Rješenje označite na listu za odgovore.



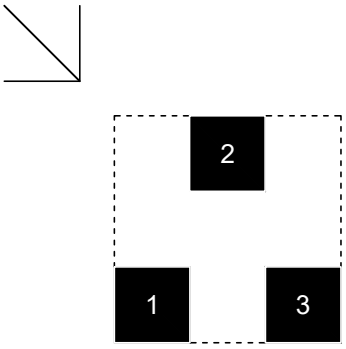




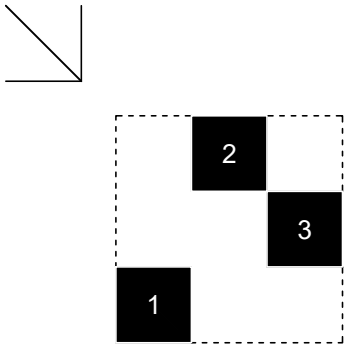


Zadatak 5 15 bodova

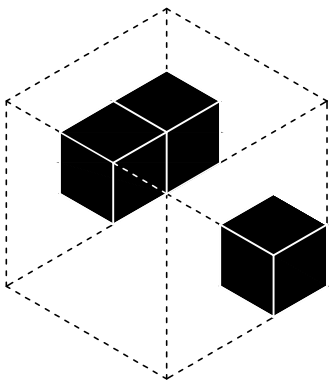
Tri kocke (1, 2, 3) postavljene su u zamišljenu kocku 3x3x3 prikazanu crtkanom linijom. Međuodnos kocki prikazan je tlocrtom i bočnim pogledom. Na listu za odgovore označite koji aksonometrijski prikaz odgovara smjeru gledanja koji je na tlocrtu i pogledu zadan strelicom.

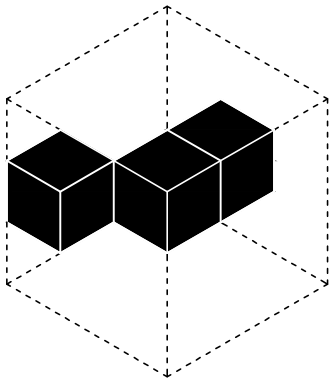


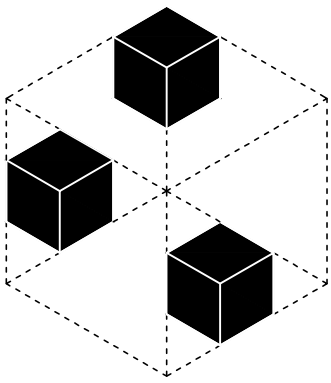
tlocrt

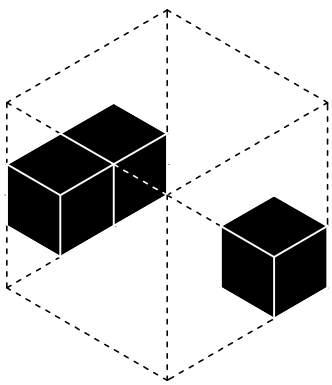


pogled


A


B


C

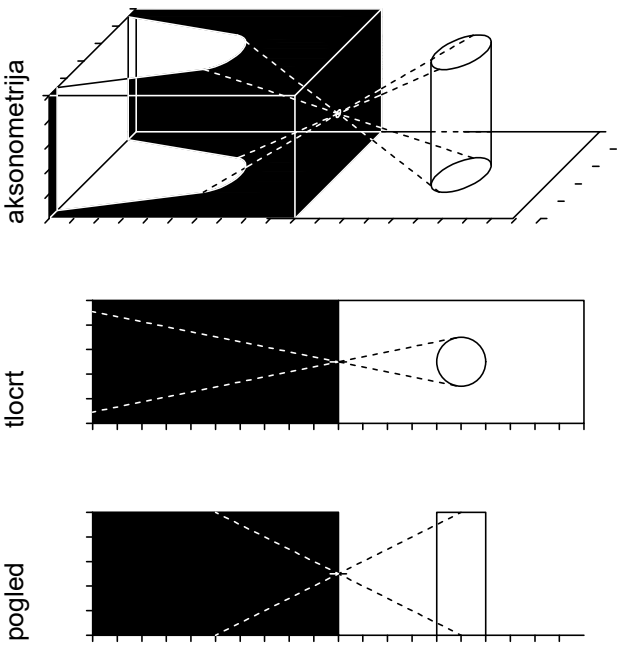

D

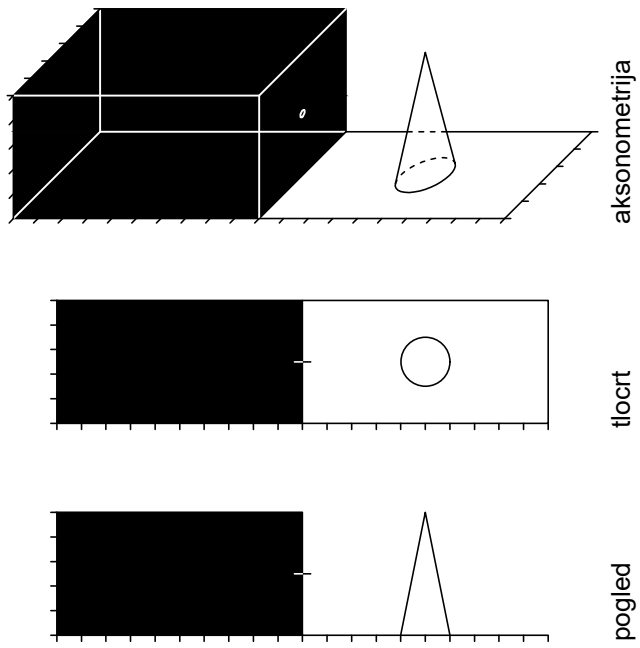
Zadatak 6 20 bodova

Camera obscura (lat. "tamna soba") zatamnjena je prostorija s otvorom (lećom). Osvjetljeni prizor ispred *camere obscure* projicira se centralno simetrično na suprotni zid, pod i strop, s centrom simetrije u leći koja je smještena u središtu prednjeg zida.

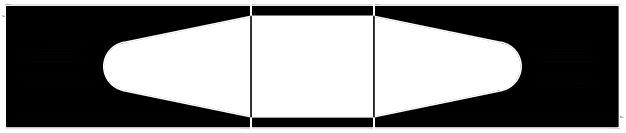
Na lijevoj polovici lista aksonometrijom, tlocrtom i pogledom prikazan je princip projekcije slike u *cameri*, ako ispred *camere obscure* stoji osvjetljeni valjak. Ispod je prikazan razvijeni plašt camere obskure s projekcijom valjka.

Ako valjak zamijenimo stošcem, projekcija na oplošju *camere obscure* se mijenja (desna polovica lista). Na listu za odgovore označite koji od niže ponuđenih razvijenih plašteva (A, B, C, D, E) stvara projekcija zadanog stošca u *cameri obscuri*.

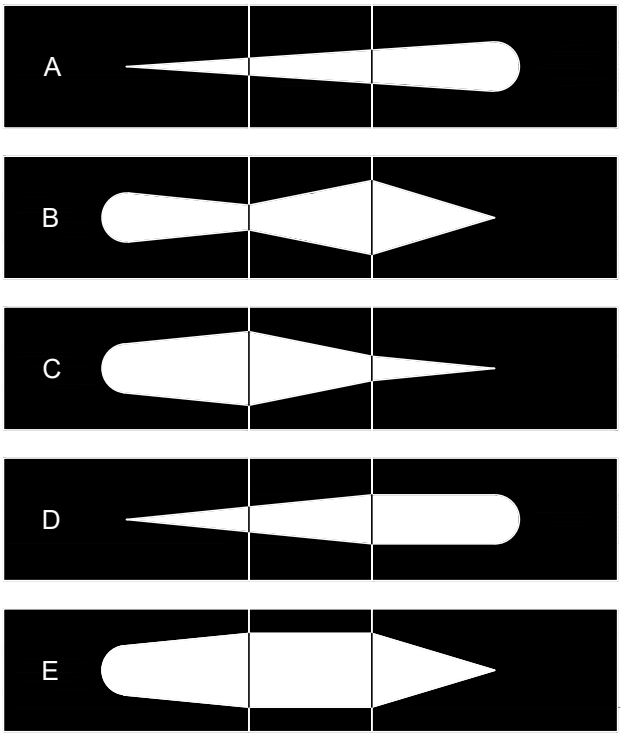




razvijeni plašt (strop - zid - pod)



razvijeni plašt (strop - zid - pod)



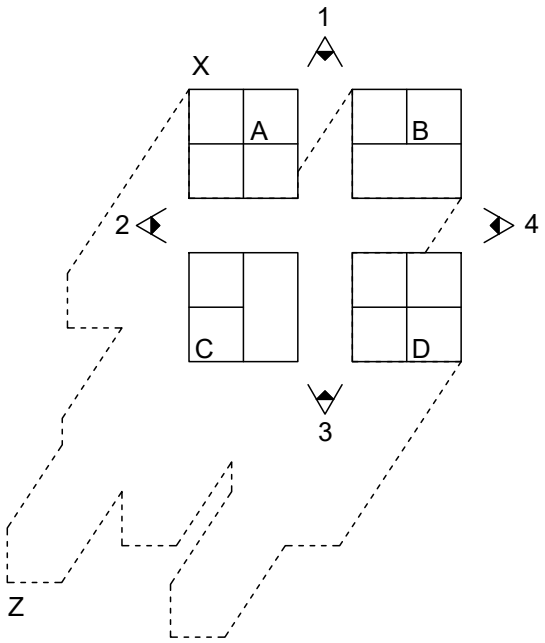
Zadatak 7 25 bodova

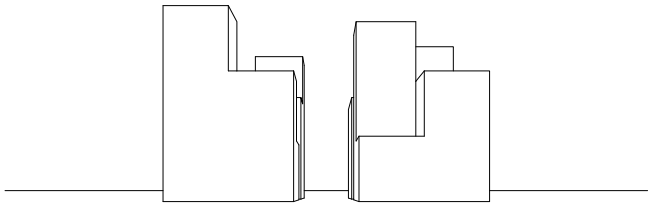
7.1

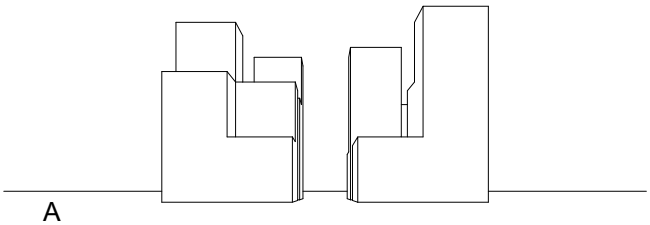
Sklop se sastoji od četiri bloka unutar pravilne mreže te je određen tlocrtom krova (X), pješačkom perspektivom iz označenog smjera (1) te bačenom sjenom (Z). Povežite svaku od pješačkih perspektiva iz preostalih smjerova (2, 3, 4) sa točnim prikazom od ponuđenih (A, B, C, D, E, F). Ispravna rješenja označite na listu za odgovore.

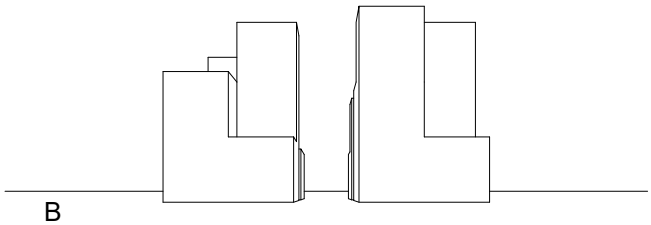
7.2

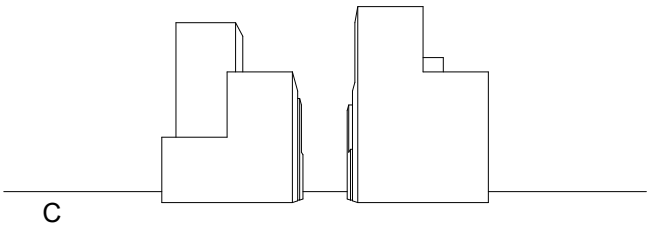
Odaberite onu krovnu plohu (A, B, C, D) od označenih na tlocrtu krova (X) koja je u potpunosti zasjenjena. Ispravno rješenje označite na listu za odgovora.

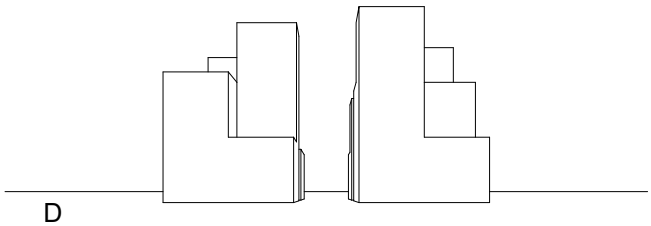


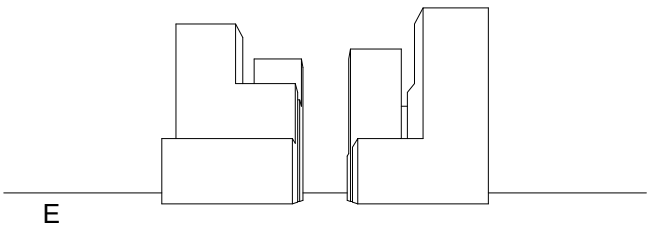


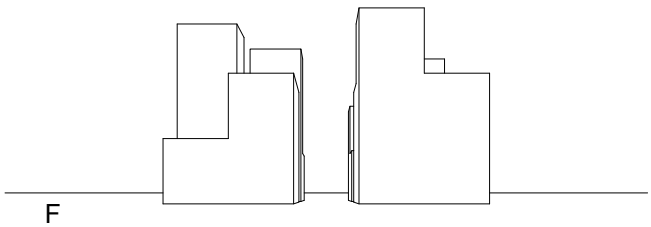












Zadatak 8 20 bodova

8.1

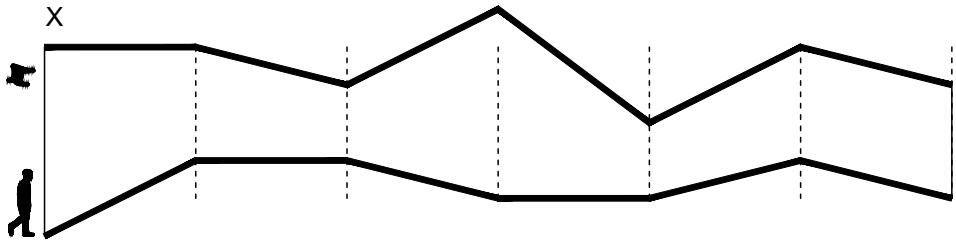
Šuplje tijelo (X) određeno je tlocrtom i uzdužnim presjekom koji su jednaki. Od ponuđenih aksonometrijskih prikaza odozgo i odozdo (A, B, C, D) odaberite dva koja odgovaraju tijelu. Ispravna rješenja označite na listu za odgovore.

8.2

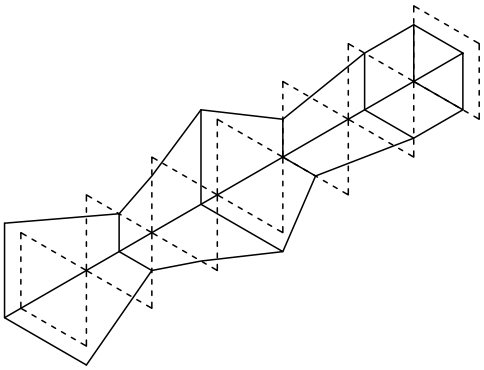
Čovjek hoda šupljim tijelom. Odredite koliko je vremena (A, B, C, D) potrebno da prijeđe s jedne na drugu stranu. Ispravno rješenje označite na listu za odgovore.

A - 3 minute B - 2 minute C - 20 sekundi D - 5 sekundi

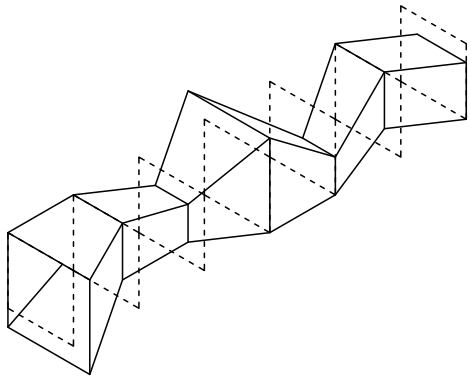
X



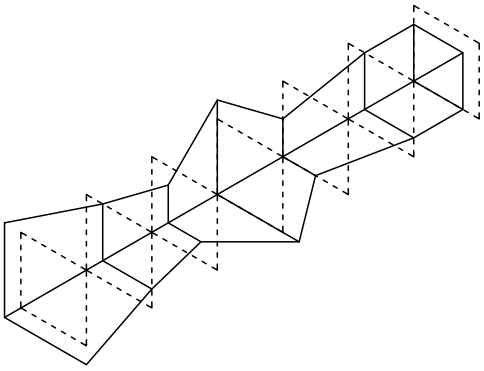
A



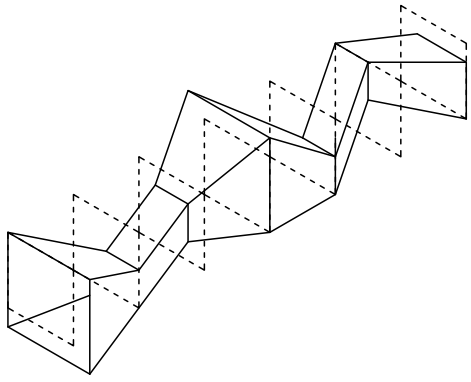
B



C

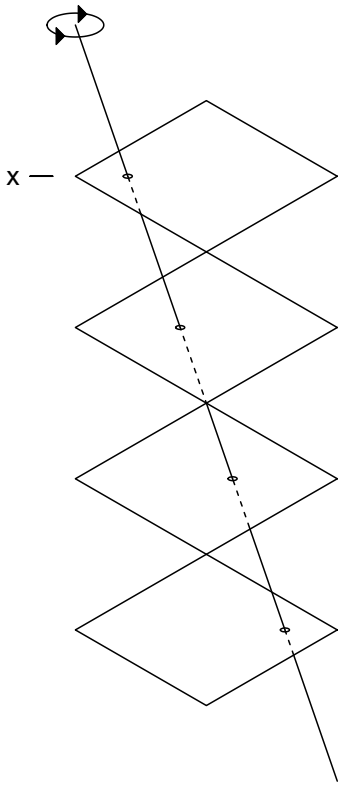


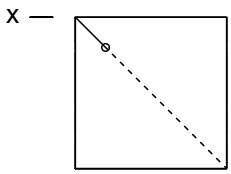
D

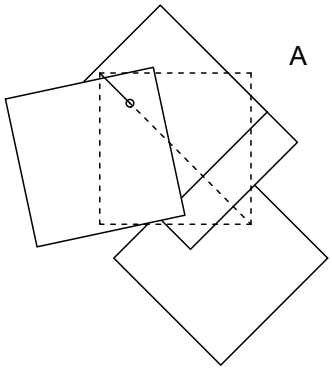


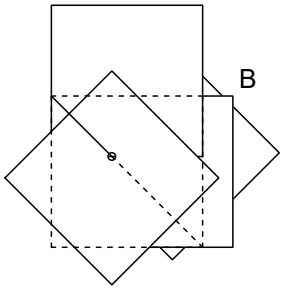
Zadatak 9 20 bodova

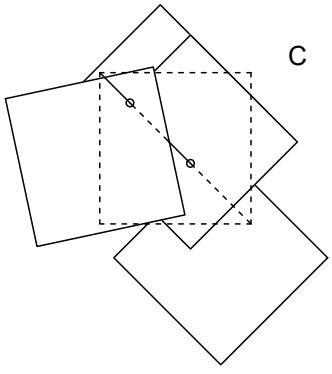
Četiri kvadratične plohe probodene su pravcem. Sklop je prikazan aksonometrijski i tlocrtno odozgo. Plohe mogu rotirati oko probodišta u oba smjera. Označite dva tlocrtna pogleda odozgo od ponuđenih (A, B, C, D) koja su moguća. Ispravna rješenja označite na listu za odgovora.

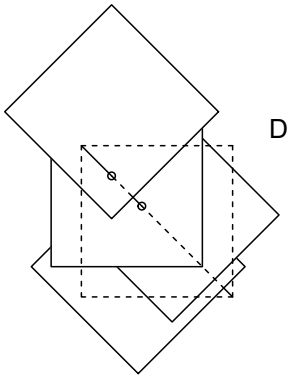












Zadatak 10 20 bodova

Na crtežu je prikazan tlocrt sobe s tri obostrana, paralelna zrcala* (x, y, z). Na poziciji A stoji Promatrač i promatra prizor u smjeru označenim crtkanom linijom. Na drugoj strani sobe nalaze se tri osobe (1, 2, 3).

10.1. Koliko ukupno ljudskih figura vidi Promatrač?

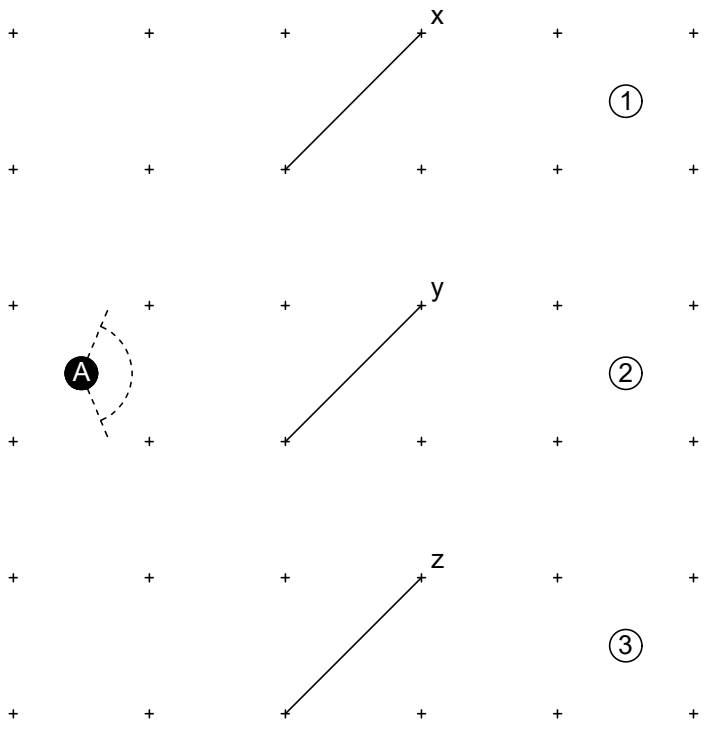
A: 1 B: 2 C: 3 D: 5 E: 6

10.2. Koliko ukupno ljudskih figura vidi Promatrač ako uklonimo zrcalo y?

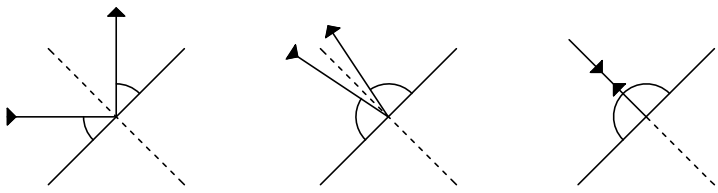
A: 2 B: 3 C: 4 D: 5 E: 6

Na listu za odgovore označite točna rješenja.

Napomena:
U konačna rješenja zbrajaju se sve stvarne i zrcalne slike ljudskih figura, svih četvero osoba u sobi.



* Zrake svjetla odbijaju se od zrcala simetrično okomici zrcala. Kut upada zrake jednak je kutu odbijanja, kako je prikazano na slijedeća tri primjera:



Zadatak 11 10 bodova

Aksonometrijom su prikazana dva međusobno okomita žičana elementa s1 i s2, postavljena uspravno na podlogu. Točke A, B, C, D, E i F točkasti su izvori svjetla. Na listu za odgovore označite dva točkasta izvora svjetla koji stvaraju sjene prikazane crtkanom linijom.

