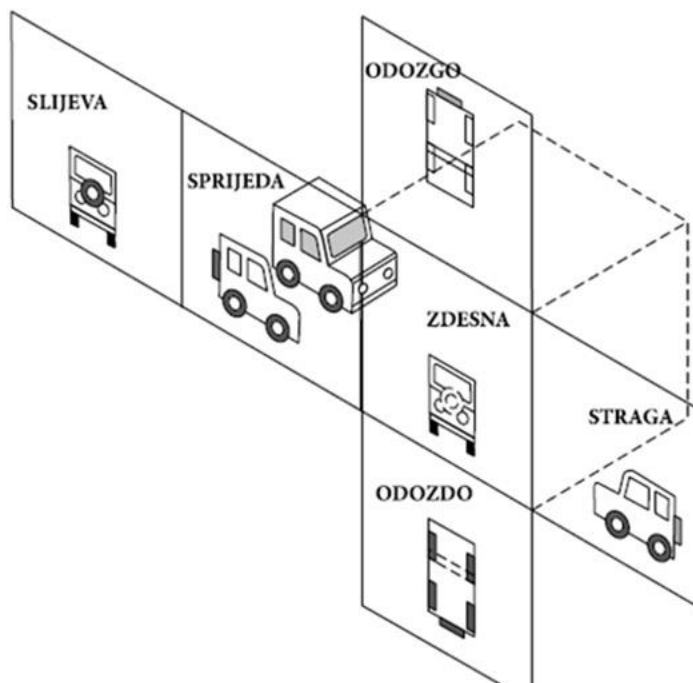
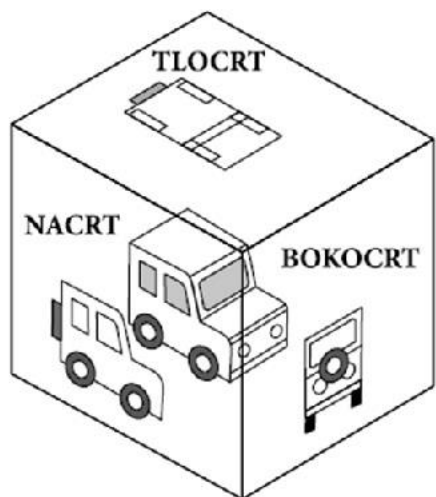
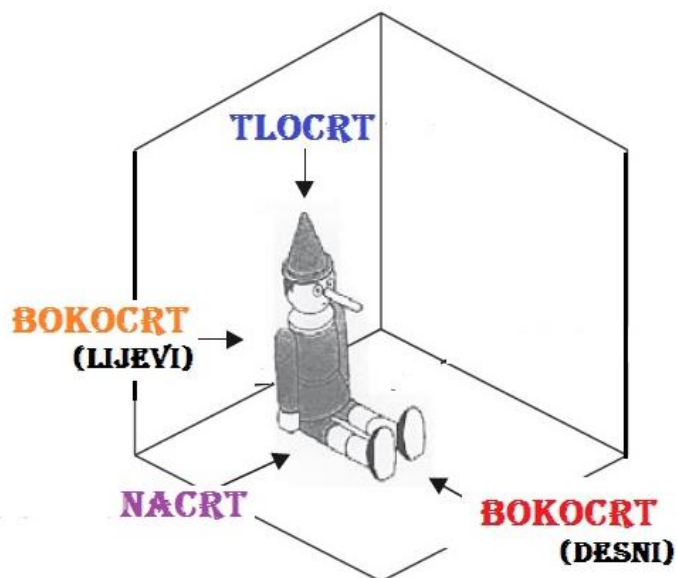
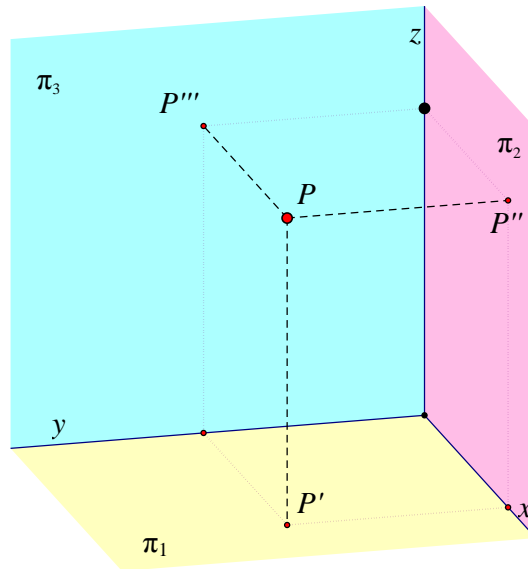


## D) Abeceda stereometrije

Tlocrt – nacrt – bokocrt



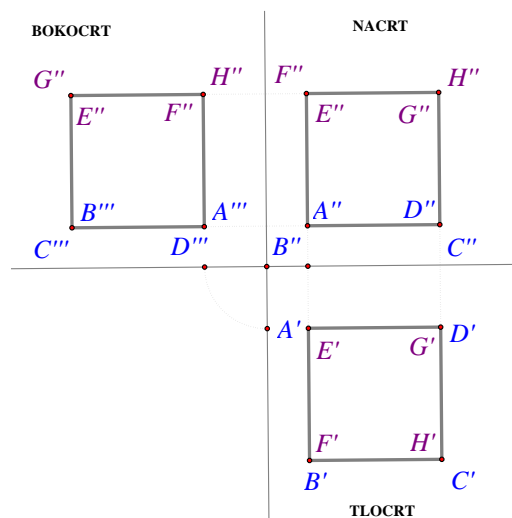
Za prikazivanje 3D objekata u 2D ravni koristimo ortogonalne projekcije na tri, u parovima međusobno okomite ravnine, koje nazivamo *ravnina tlocrta*, *ravnina nacrta* i *ravnina bokocrta*. Označavamo ih redom  $\pi_1$ ,  $\pi_2$  i  $\pi_3$ . Na sljedećoj slici prikazana je projekcija neke točke prostora na ravnine  $\pi_1$  (ravnina tlocrta),  $\pi_2$  (ravnina nacrta) i  $\pi_3$  (bokocrtna ravnina).



- Ortogonalnu projekciju točke  $P$  na ravninu  $\pi_1$  označavamo  $P'$  te je zovemo *tlocrt* točke  $P$  (*pogled odozgo*).
- Ortogonalnu projekciju točke  $P$  na ravninu  $\pi_2$  označavamo  $P''$  te je zovemo *nacrt* točke  $P$  (*pogled sprijeda*).
- Ortogonalnu projekciju točke  $P$  na ravninu  $\pi_3$  označavamo  $P'''$  te je zovemo *bokocrt* točke  $P$  (*pogled zdesna*). Uobičajeno je crtati desni bokocrt, osim ako nije drugačije definirano.

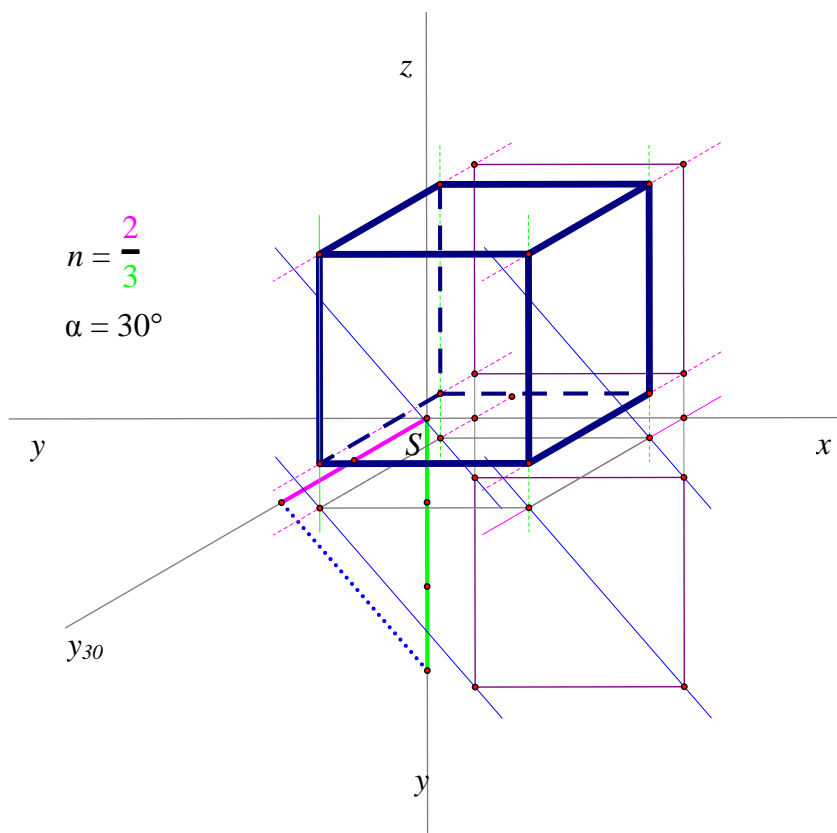
**Primjer 1.**

Nacrtajmo tlocrt, nacrt i bokocrt kocke.

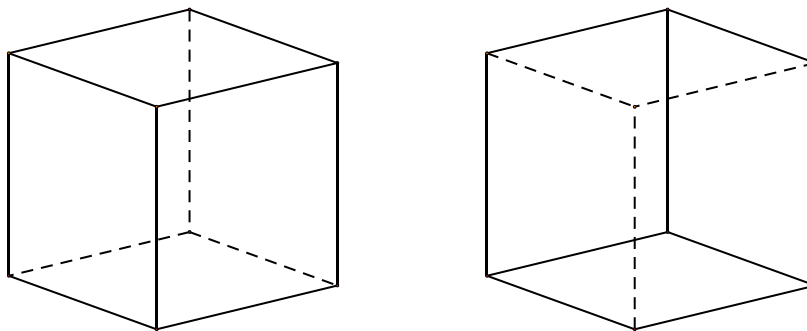


## Kosa projekcija

*Kosa projekcija* jedna je od metoda prikaza 3D na 2D. Uobičajeno je kosu projekciju kocke crtati na sljedeći način:

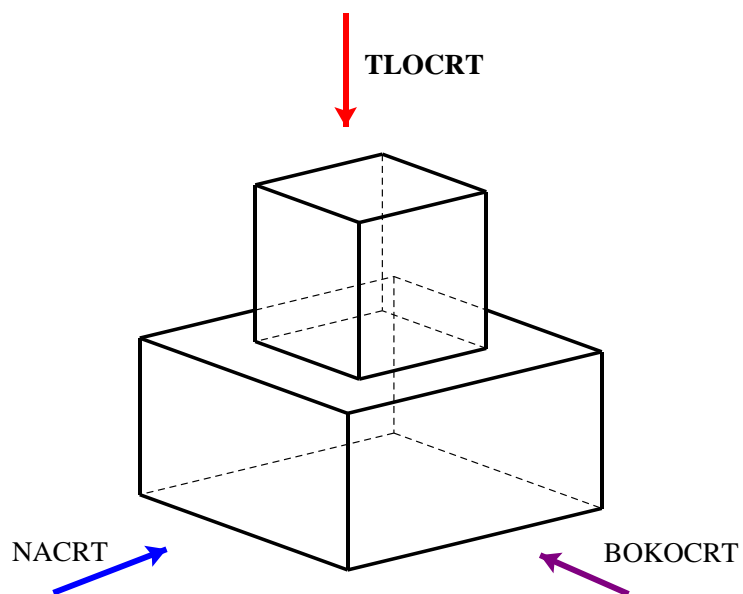


Istu kocku možemo promatrati na dva različita načina pa nevidljive bridove crtamo *iscrtkano*.

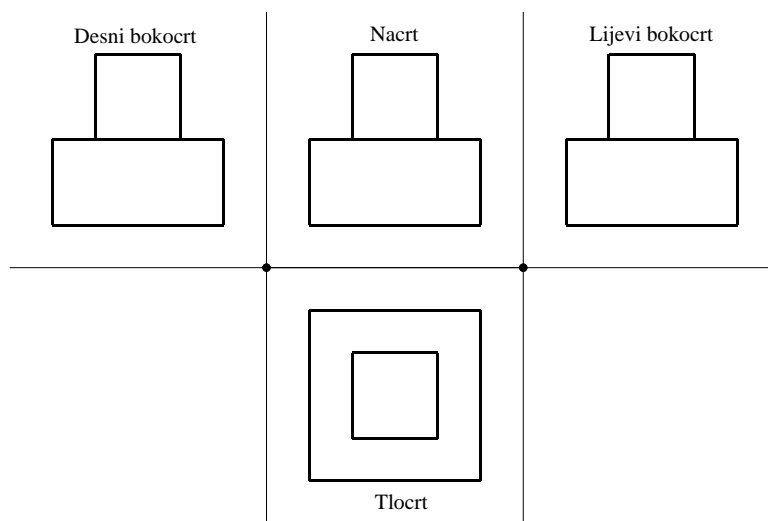


Kako bi se istaknula trodimenzionalnost nacrtane kocke (a tako i svih ostalih geometrijskih figura), uobičajeno je strane obojiti nijansama jedne boje (od najsvjetlije do najtamnije).

**Primjer 2.** Geometrijskom tijelu na slici nacrtajmo projekcije tlocrta, nacrta i bokocrt (i desni i lijevi).

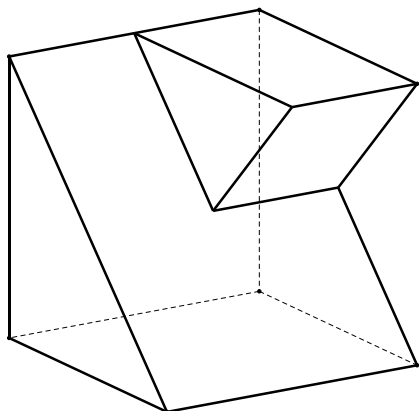


Rješenje:

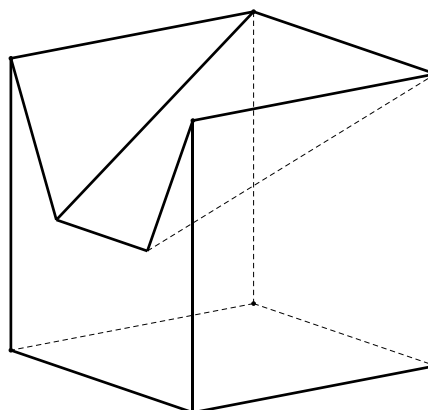


**Zadatak 1.** Na idućim su slikama geometrijske figure prikazane u kosoj projekciji. Nacrtajte projekcije tlocrta, nacrt i bokocrta (lijevi i desni) za svaku od figura.

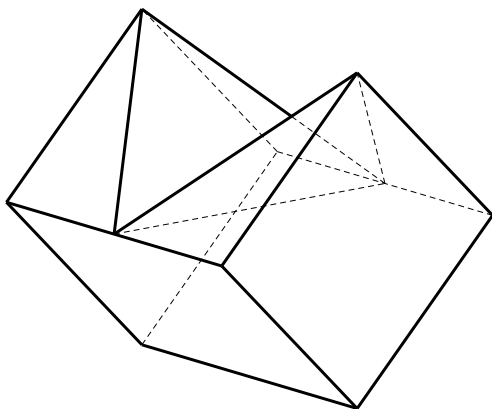
a)



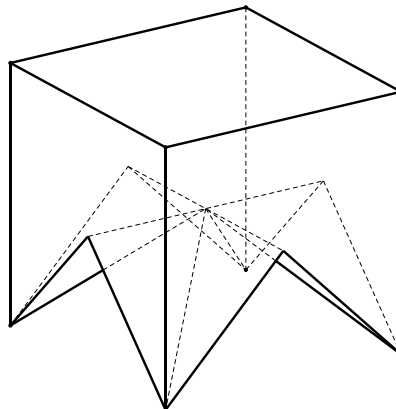
b)



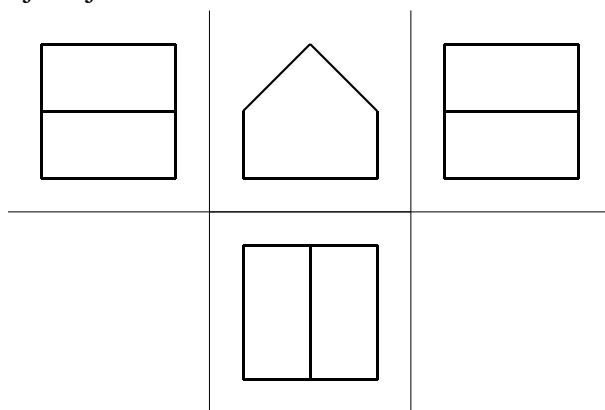
c)



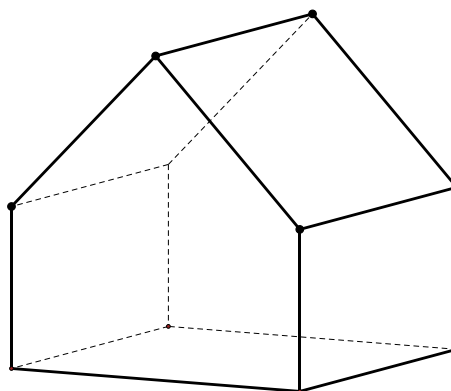
d)



**Primjer 3.** Geometrijsko tijelo (figuru) prikazano projekcijama (tlocrt, nacrt i bokocrt), nacrtajmo u kosoj projekciji.

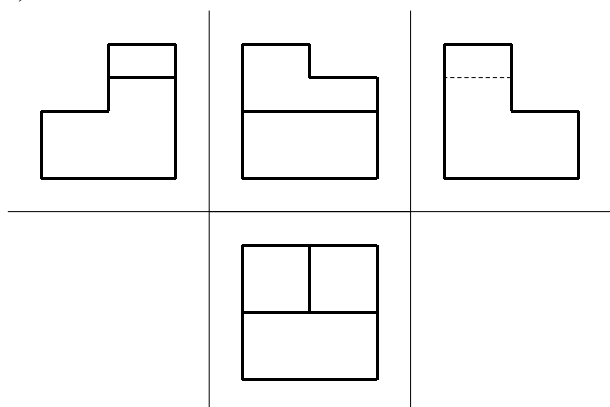


Rješenje:

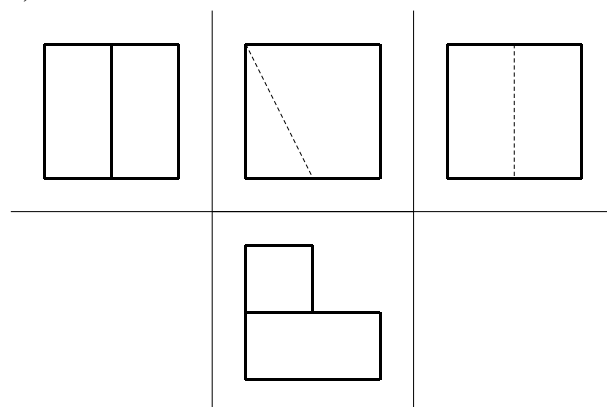


**Zadatak 2.** Geometrijske figure prikazane su svojim projekcijama. Nacrtajte ih u kosoj projekciji.  
(Isctkanim linijama istaknuti su nevidljivi bridovi.)

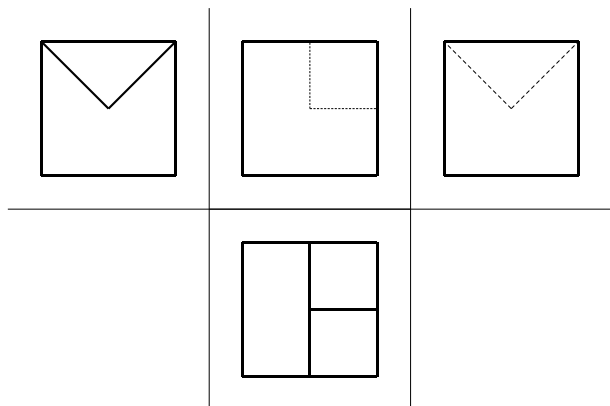
a)



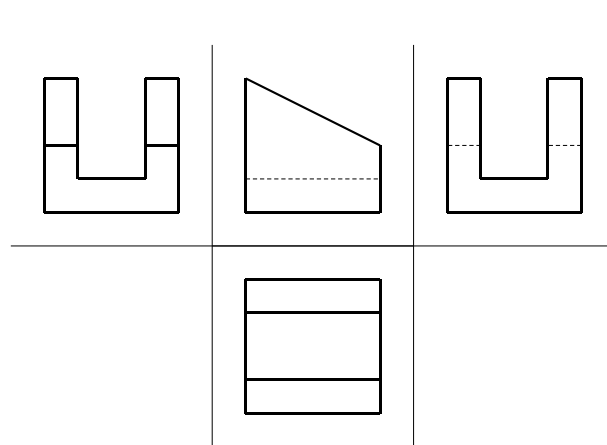
b)



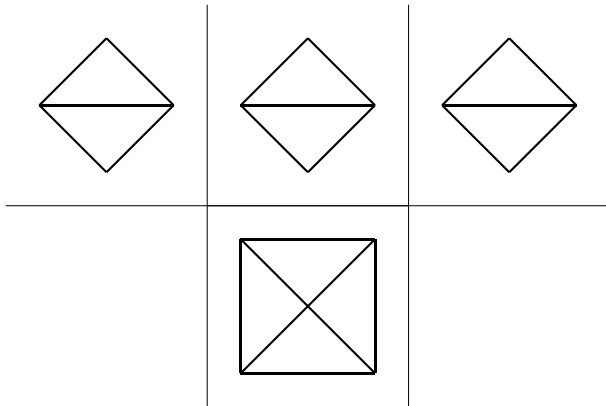
c)



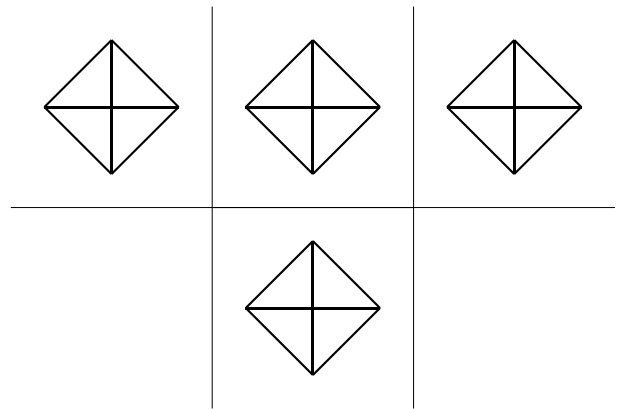
d)



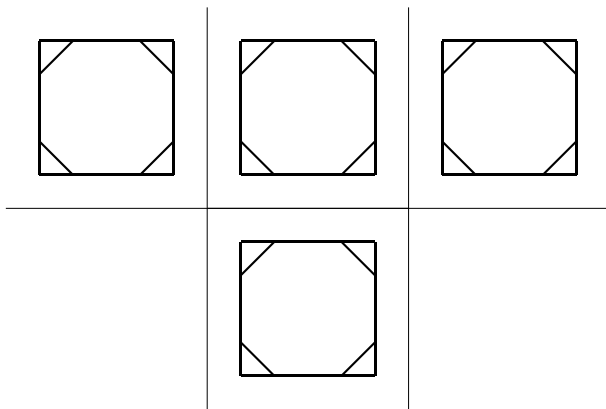
e)



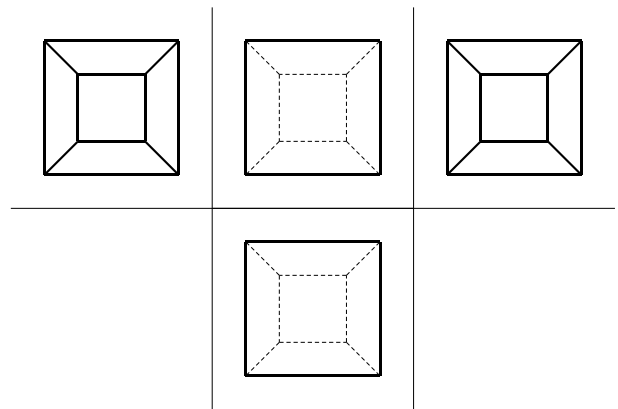
f)



g)

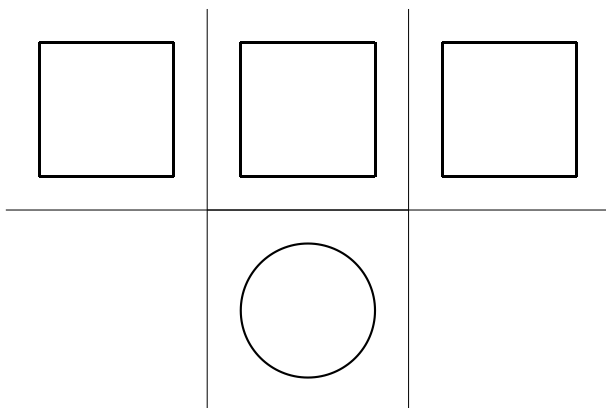


h)

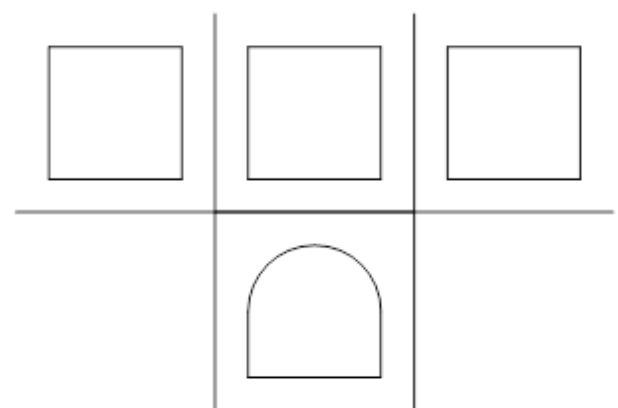


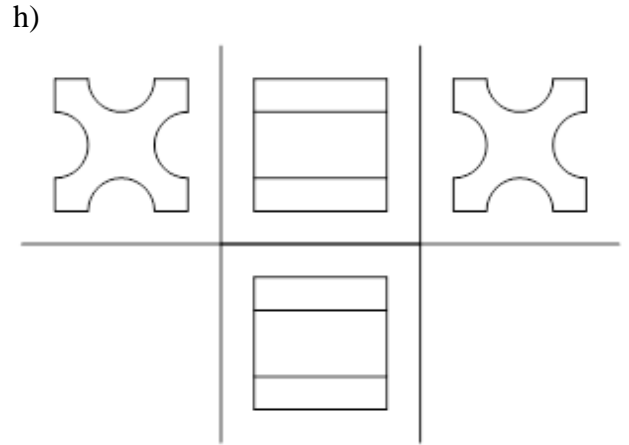
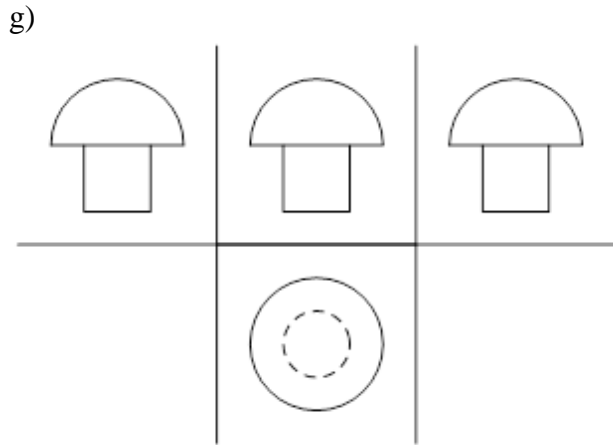
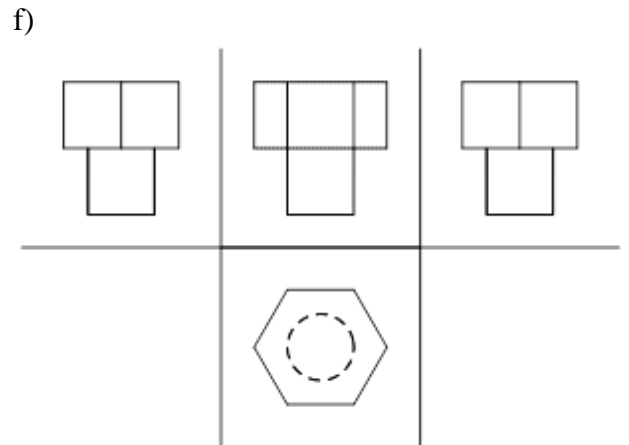
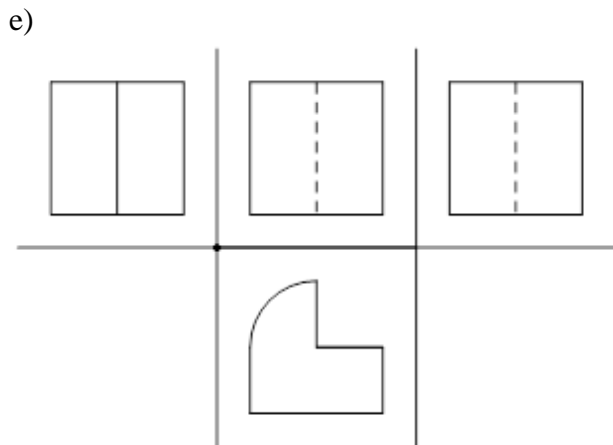
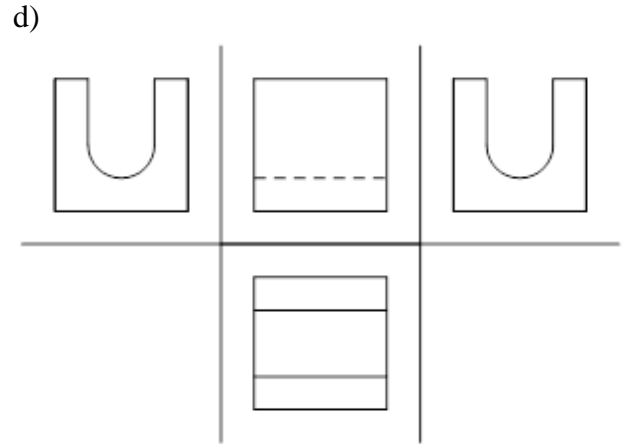
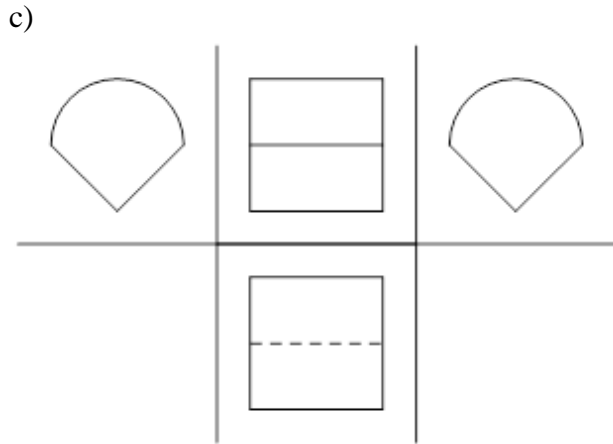
**Zadatak 3.** Geometrijske figure prikazane su svojim projekcijama. Nacrtajte ih u kosoj projekciji. (Isrtnanim linijama istaknuti su nevidljivi bridovi.)

a)



b)

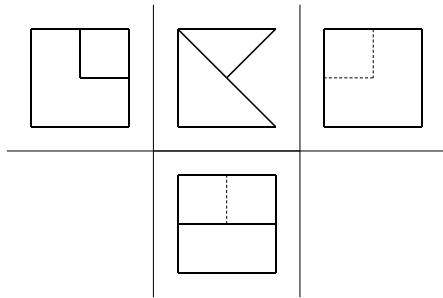




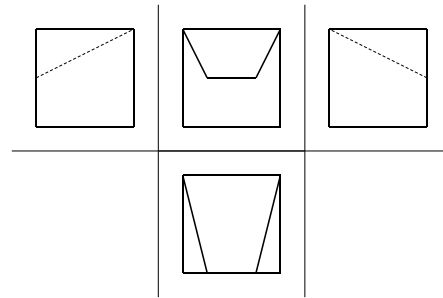


Rješenja:

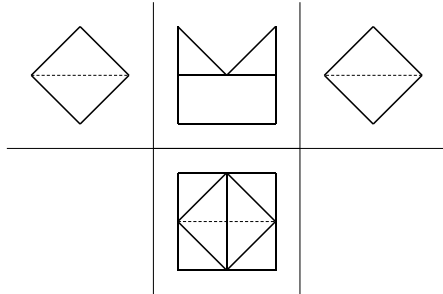
1. a)



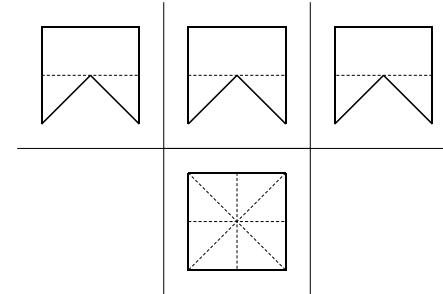
b)



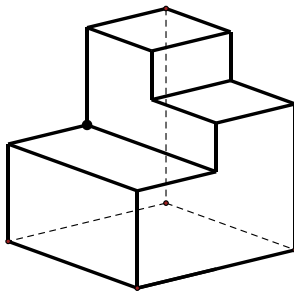
c)



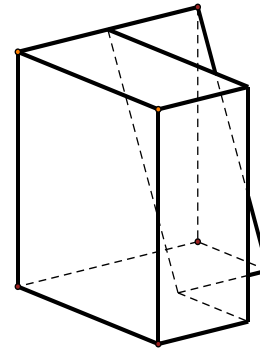
d)



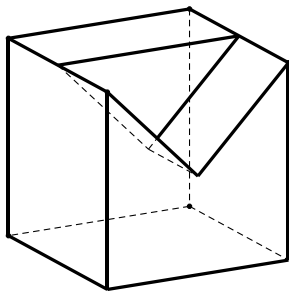
2. a)



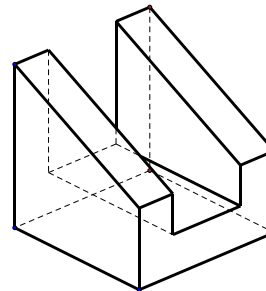
b)



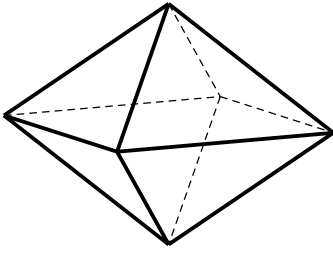
c)



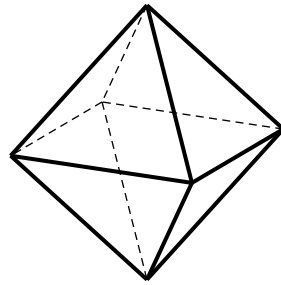
d)



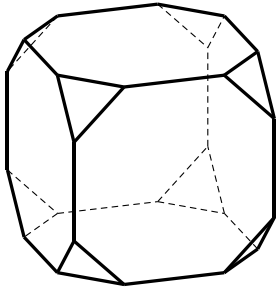
e)



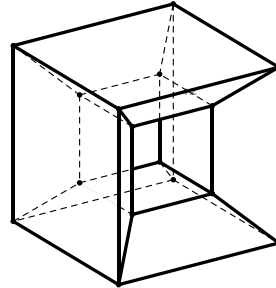
f)



g)

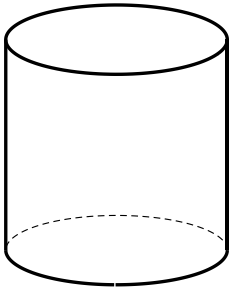


h)



3.

a)



b)

