U N I V E R Z I T E T U B A N J O J L U C I

MAŠINSKI FAKULTET

MEHANIKA I (STATIKA)

Zadaci za Prvi grafički rad

BANJA LUKA, 2023.

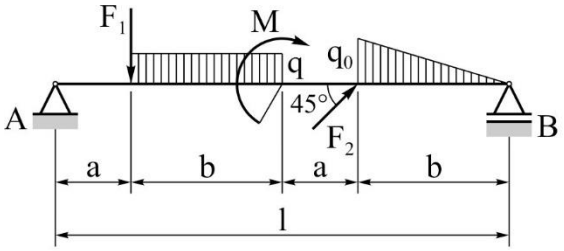
ZADATAK 1

Za datu prostu treba:

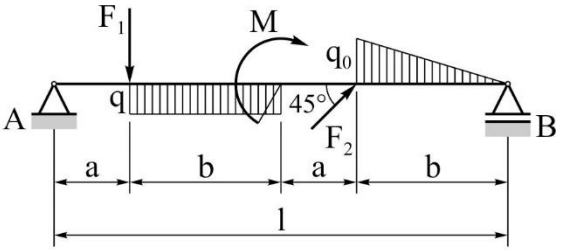
1) Odrediti reakcije,
2) Definisati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima (poljima) grede,
3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim karakterističnim presecima,
4) Nacrtati statičke dijagrame.

Tabela 1.1 Podaci za deset varijanti proste grede (V1, V2, …, V10)

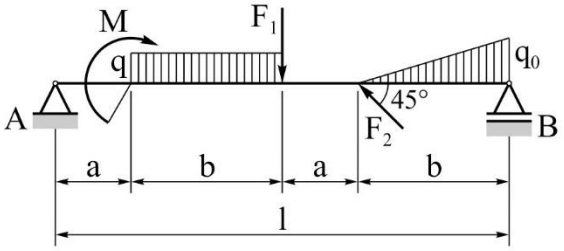
PODACI	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**	**V7**	**V8**	**V9**	**V10**
F_1 [kN]	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$
F_2 [kN]	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15
q [kN/m]	10	15	20	10	15	10	15	20	10	15
q_0 [kN/m]	20	30	20	20	30	20	30	20	20	30
M [kNm]	10	10	10	10	10	10	10	10	10	10
a [m]	1	1	1	1	1	1	1	1	1	1
b [m]	2	2	2	2	2	2	2	2	2	2
Slika	Sl. 1.1	Sl. 1.2	Sl. 1.3	Sl. 1.4	Sl. 1.5	Sl. 1.6	Sl. 1.7	Sl. 1.8	Sl. 1.9	Sl. 1.10



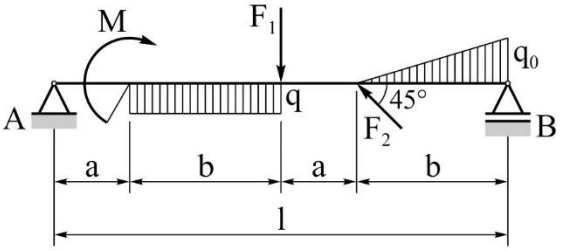
Sl. 1.1



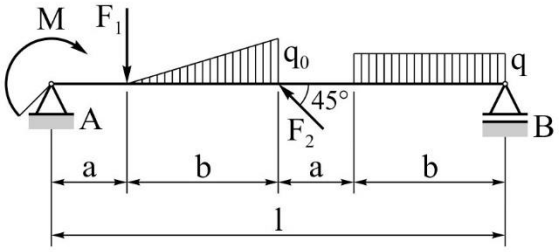
Sl. 1.6



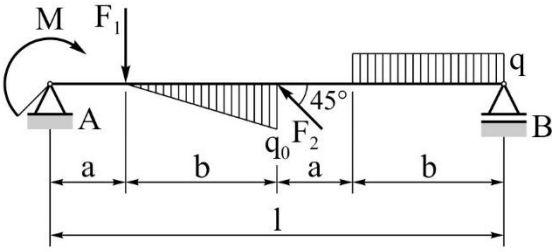
Sl. 1.2



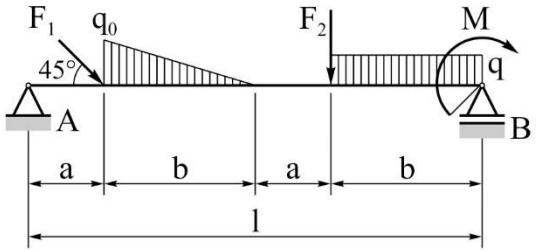
Sl. 1.7



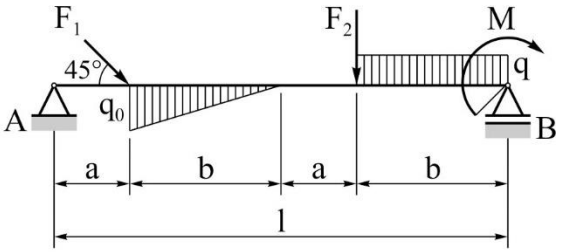
Sl. 1.3



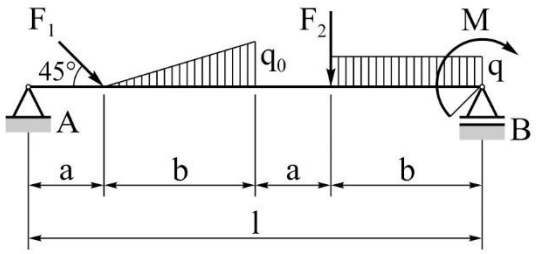
Sl. 1.8



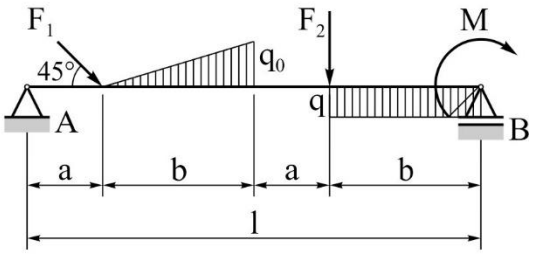
Sl. 1.4



Sl. 1.9



Sl. 1.5



Sl. 1.10

Uz zadatak 1

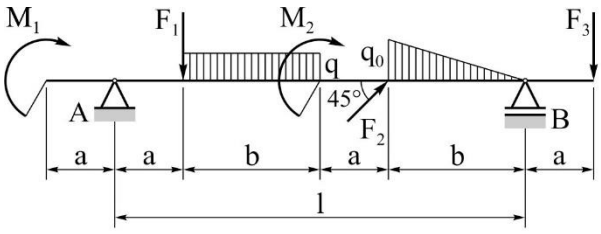
ZADATAK 2

Za datu gredu sa prepustima treba:

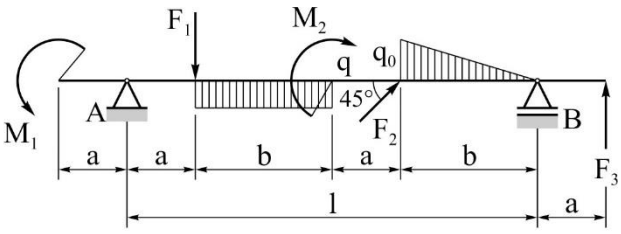
1) Odrediti reakcije,
2) Definisati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima (poljima) grede,
3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim karakterističnim presecima,
4) Nacrtati statičke dijagrame.

Tabela 2.1 Podaci za deset varijanti grede sa prepustima (V1, V2, …, V10)

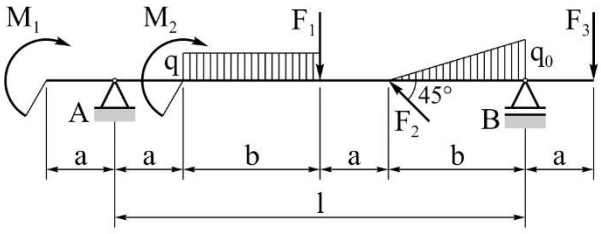
PODACI	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**	**V7**	**V8**	**V9**	**V10**
F_1 [kN]	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$
F_2 [kN]	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15
F_3 [kN]	20	30	10	20	30	20	30	10	20	30
q [kN/m]	10	15	20	10	15	10	15	20	10	15
q_0 [kN/m]	20	30	20	20	30	20	30	20	20	30
M_1 [kNm]	10	10	10	10	10	10	10	10	10	10
M_2 [kNm]	15	15	15	15	15	15	15	15	15	15
a [m]	1	1	1	1	1	1	1	1	1	1
b [m]	2	2	2	2	2	2	2	2	2	2
Slika	Sl. 1.1	Sl. 1.2	Sl. 1.3	Sl. 1.4	Sl. 1.5	Sl. 1.6	Sl. 1.7	Sl. 1.8	Sl. 1.9	Sl. 1.10



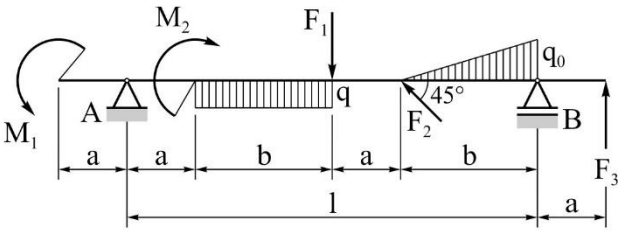
Sl. 2.1



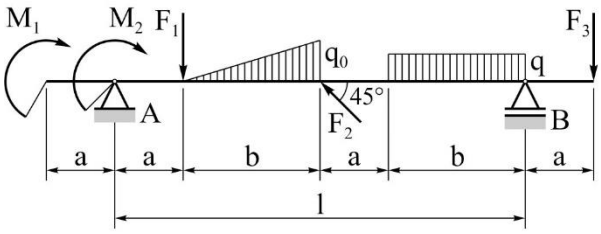
Sl. 2.6



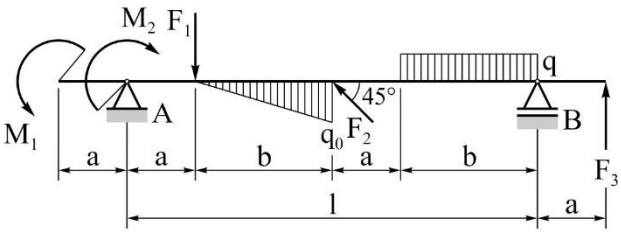
Sl. 2.2



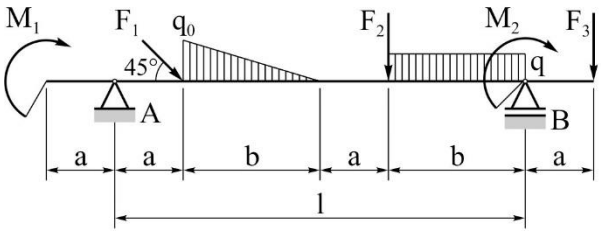
Sl. 2.7



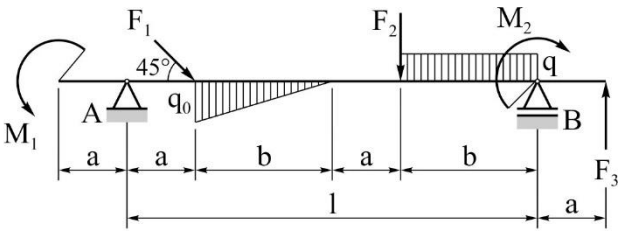
Sl. 2.3



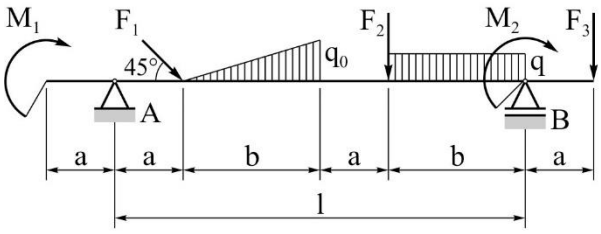
Sl. 2.8



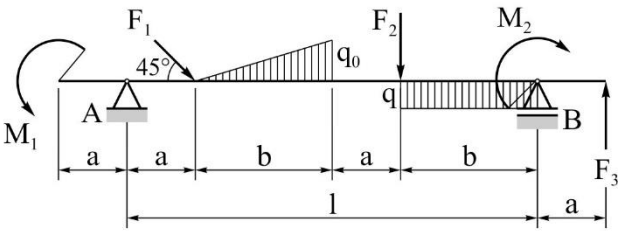
Sl. 2.4



Sl. 2.9



Sl. 2.5



Sl. 2.10

Uz zadatak 2

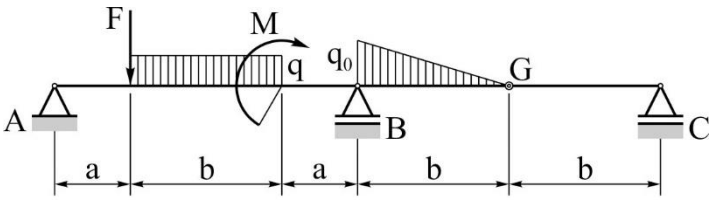
ZADATAK 3

Za datu Gerberovu gredu (gredu sa zglobom G) treba:

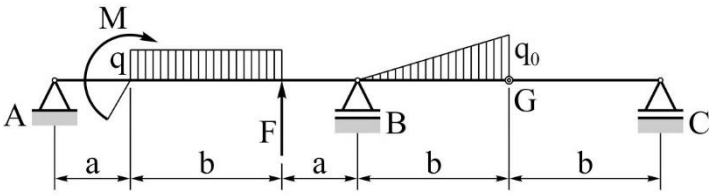
1) Odrediti reakcije,
2) Definisati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima delove (poljima) grede,
3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim karakterističnim presecima,
4) Nacrtati statičke dijagrame.

Tabela 3.1 Podaci za deset varijanti Gerberove grede (V1, V2, …, V10)

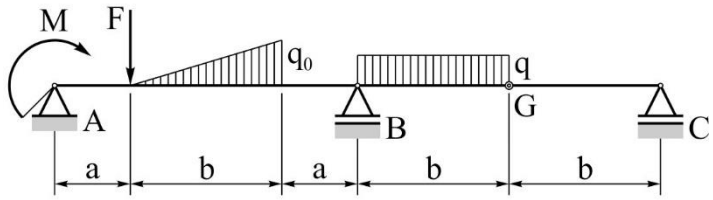
PODACI	**V1**	**V2**	**V3**	**V4**	**V5**	**V6**	**V7**	**V8**	**V9**	**V10**
F [kN]	10	15	20	20	30	10	15	20	20	30
q [kN/m]	10	15	20	10	15	10	15	20	10	15
q_0 [kN/m]	20	30	20	20	30	20	30	20	20	30
M [kNm]	15	15	15	15	15	15	15	15	15	15
a [m]	1	1	1	1	1	1	1	1	1	1
b [m]	2	2	2	2	2	2	2	2	2	2
Slika	Sl. 1.1	Sl. 1.2	Sl. 1.3	Sl. 1.4	Sl. 1.5	Sl. 1.6	Sl. 1.7	Sl. 1.8	Sl. 1.9	Sl. 1.10



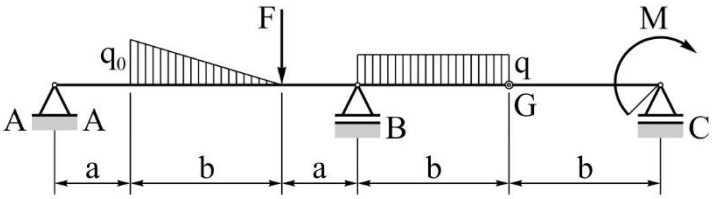
Sl. 3.1



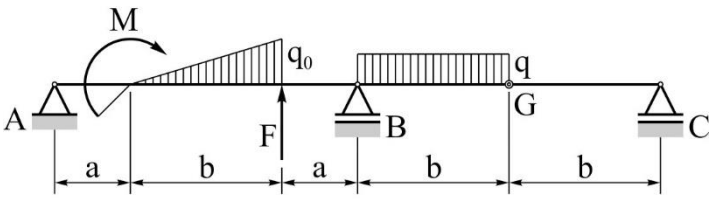
Sl. 3.2



Sl. 3.3

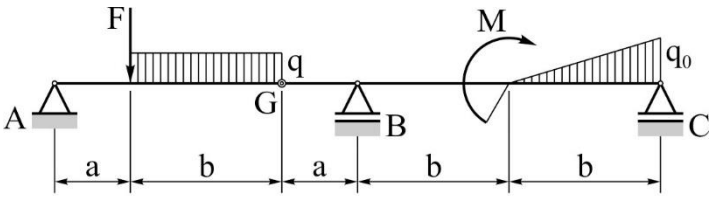


Sl. 3.4

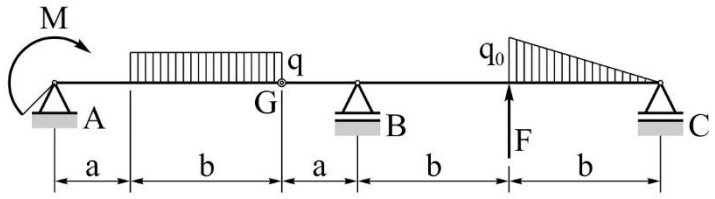


Sl. 3.5

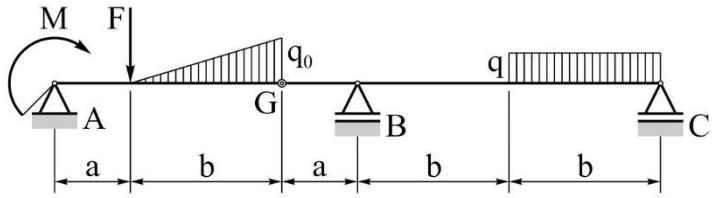
Uz zadatak 3



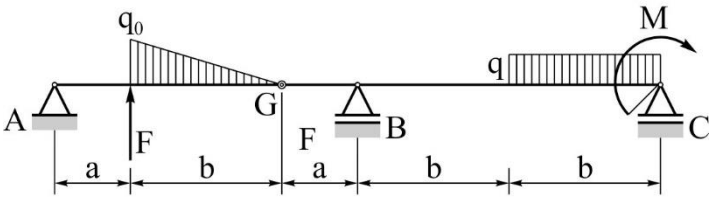
Sl. 3.6



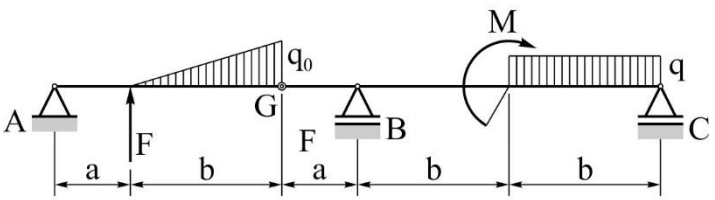
Sl. 3.7



Sl. 3.8



Sl. 3.9



Sl. 3.10

Uz zadatak 3