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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, 2015. Godine

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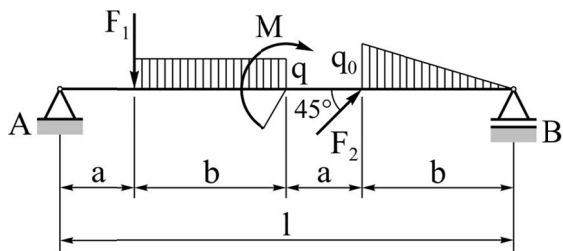
## ZADATAK 1

Za datu prostu treba:

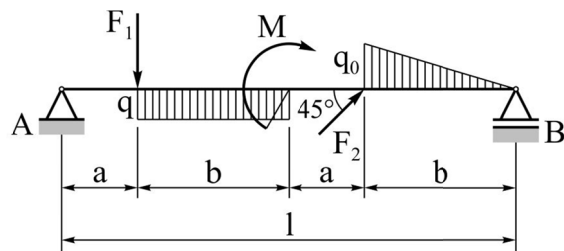
- 1) Odrediti reakcije,
- 2) Definirati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima (poljima) grede,
- 3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim karakterističnim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

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

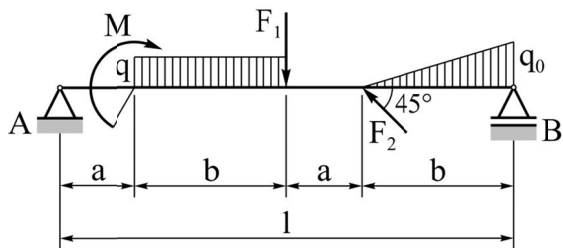
PODACI	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
$F_1$ [kN]	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$
$F_2$ [kN]	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15
$q$ [kN/m]	10	15	20	10	15	10	15	20	10	15
$q_0$ [kN/m]	20	30	20	20	30	20	30	20	20	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



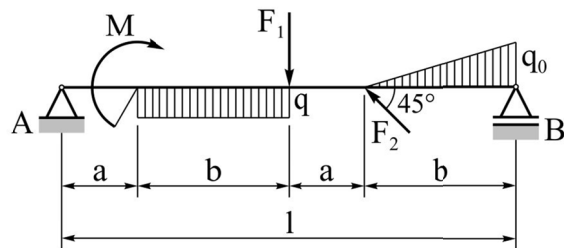
Sl. 1.1



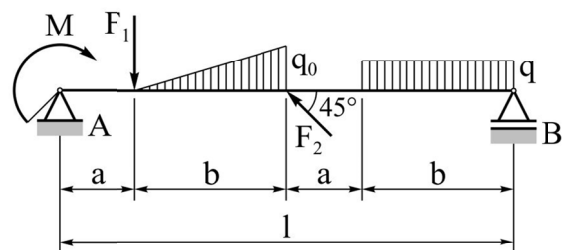
Sl. 1.6



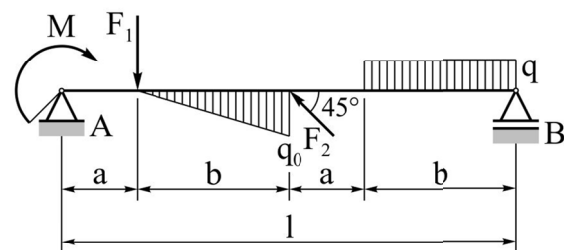
Sl. 1.2



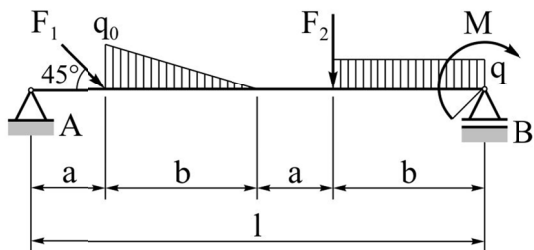
Sl. 1.7



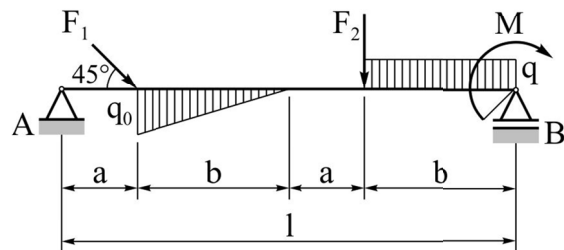
Sl. 1.3



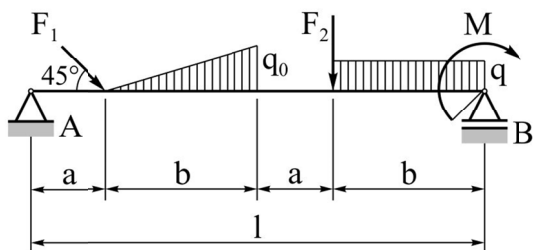
Sl. 1.8



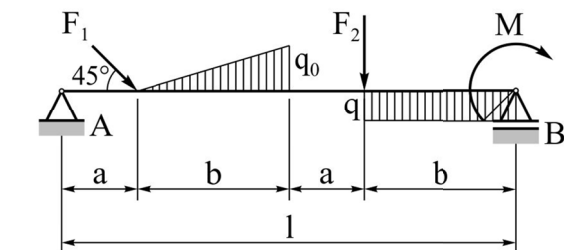
Sl. 1.4



Sl. 1.9



Sl. 1.5



Sl. 1.10

**Uz zadatak 1**

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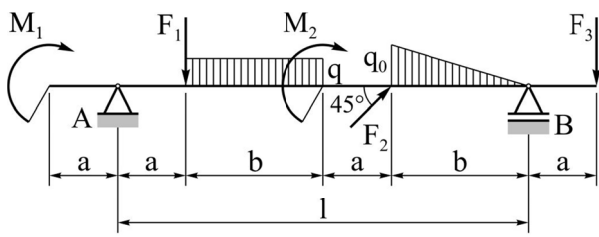
## ZADATAK 2

Za datu gredu sa prepustima treba:

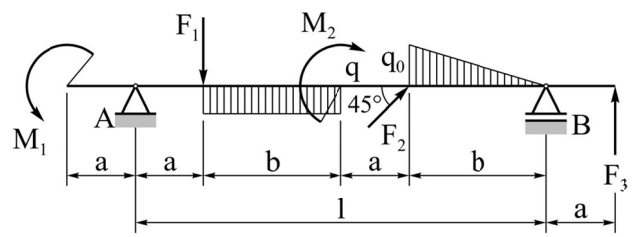
- 1) Odrediti reakcije,
- 2) Definirati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima (poljima) grede,
- 3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim karakterističnim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

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

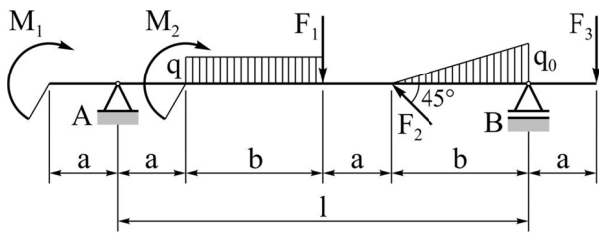
PODACI	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
$F_1$ [kN]	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$	10	15	20	$10\sqrt{2}$	$10\sqrt{2}$
$F_2$ [kN]	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15	$10\sqrt{2}$	$10\sqrt{2}$	$10\sqrt{2}$	10	15
$F_3$ [kN]	20	30	10	20	30	20	30	10	20	30
$q$ [kN/m]	10	15	20	10	15	10	15	20	10	15
$q_0$ [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



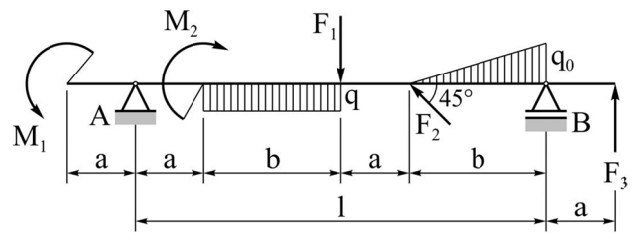
Sl. 2.1



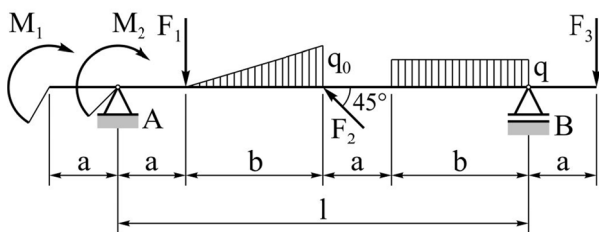
Sl. 2.6



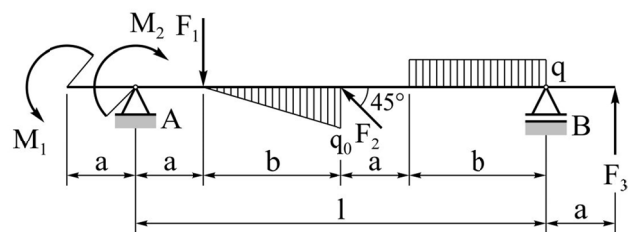
Sl. 2.2



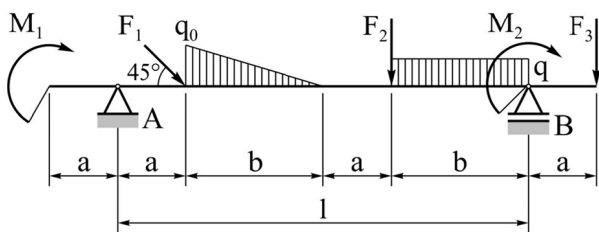
Sl. 2.7



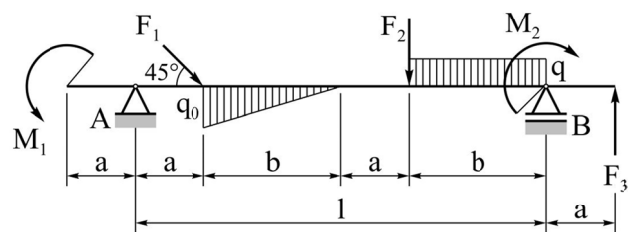
Sl. 2.3



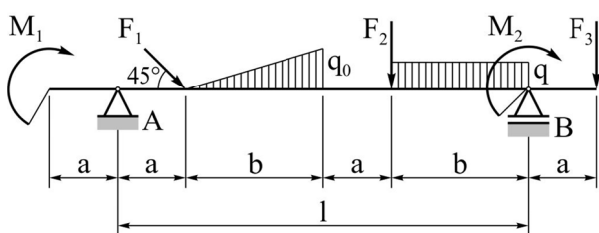
Sl. 2.8



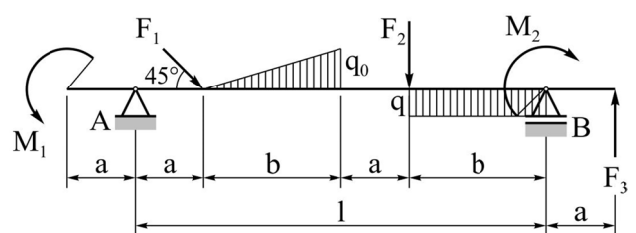
Sl. 2.4



Sl. 2.9



Sl. 2.5



Sl. 2.10

**Uz zadatak 2**

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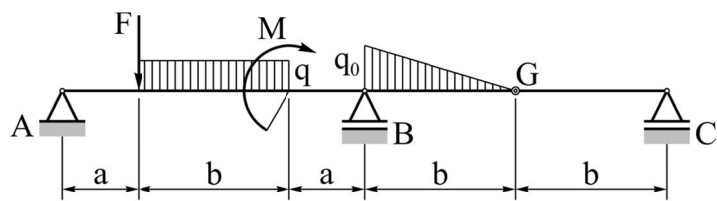
## ZADATAK 3

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

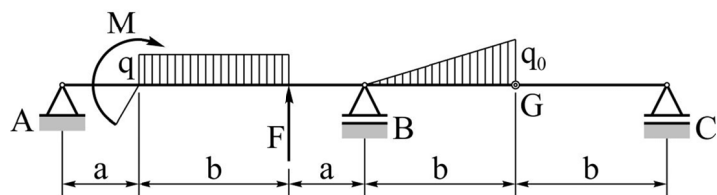
- 1) Odrediti reakcije,
- 2) Definirati jednačine presečnih veličina za proizvoljni poprečni presek u svim delovima delove (poljima) grede,
- 3) Odrediti i tabelarno prikazati vrednosti presečnih veličina u poprečnim presecima na granicama polja grede, a zatim odrediti presečne momenta savijanja u ostalim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

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

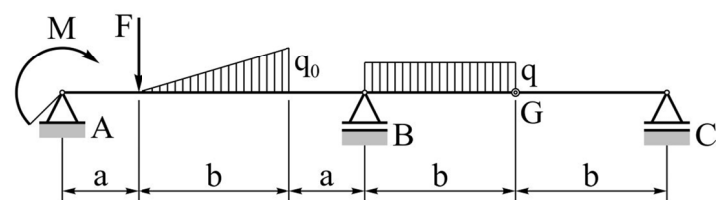
PODACI	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
F [kN]	10	15	20	20	30	10	15	20	20	30
q [kN/m]	10	15	20	10	15	10	15	20	10	15
q <sub>0</sub> [kN/m]	20	30	20	20	30	20	30	20	20	30
M [kNm]	15	15	15	15	15	15	15	15	15	15
a [m]	1	1	1	1	1	1	1	1	1	1
b [m]	2	2	2	2	2	2	2	2	2	2
Slika	Sl. 1.1	Sl. 1.2	Sl. 1.3	Sl. 1.4	Sl. 1.5	Sl. 1.6	Sl. 1.7	Sl. 1.8	Sl. 1.9	Sl. 1.10



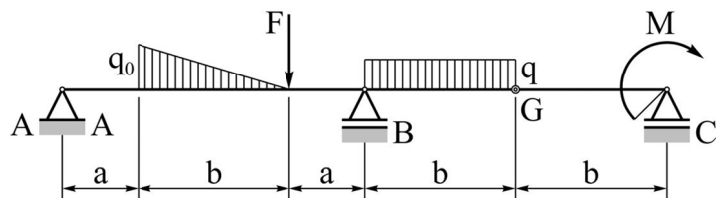
Sl. 3.1



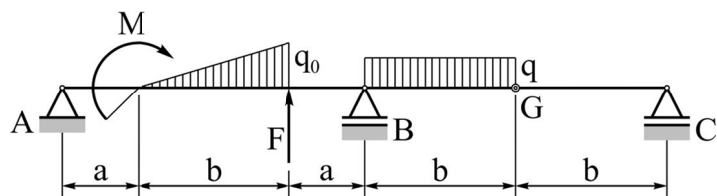
Sl. 3.2



Sl. 3.3

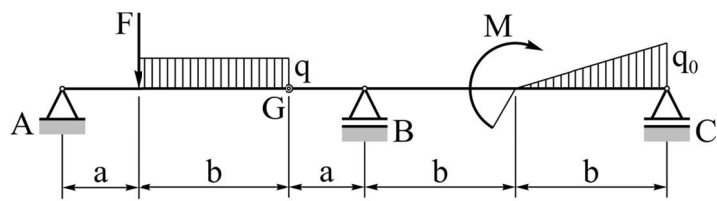


Sl. 3.4

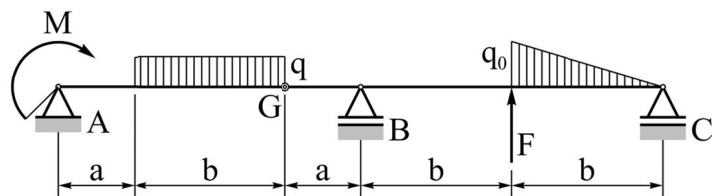


Sl. 3.5

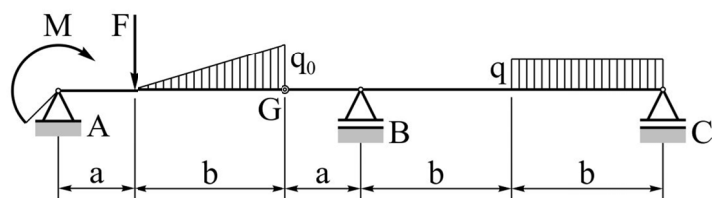
**Uz zadatak 3**



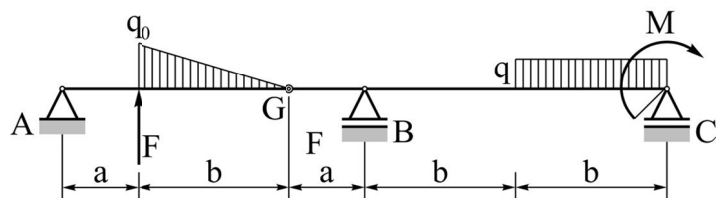
Sl. 3.6



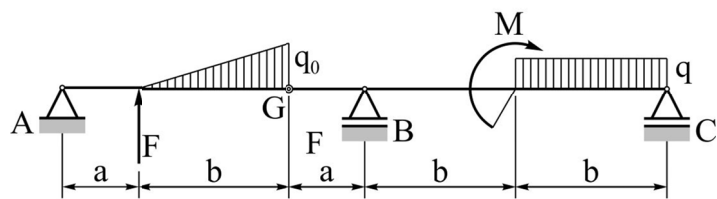
Sl. 3.7



Sl. 3.8



Sl. 3.9



Sl. 3.10

**Uz zadatak 3**