National aerospace university
"Kharkiv Aviation Institute"
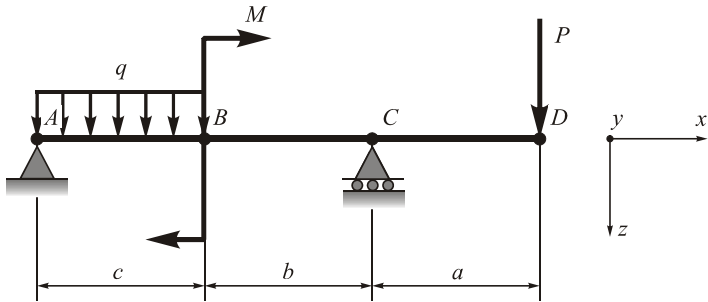### Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 1   **Complexity: 1**

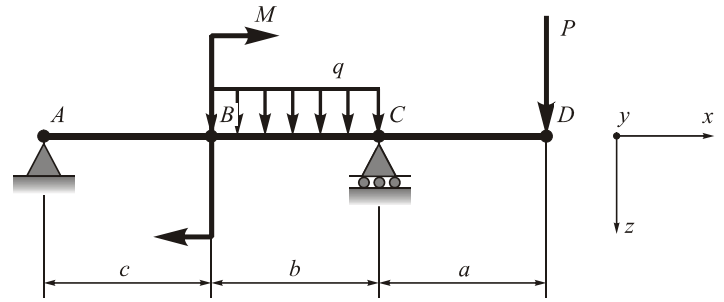**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 2   **Complexity: 1**

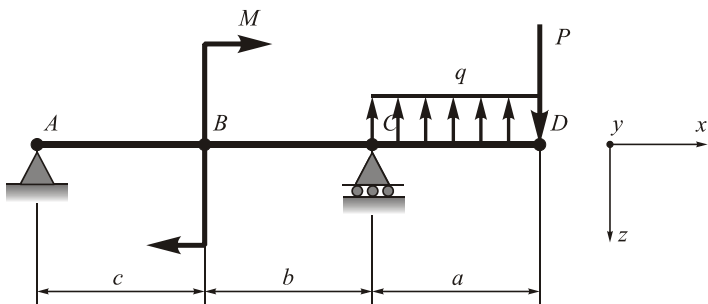**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 3   **Complexity: 1**

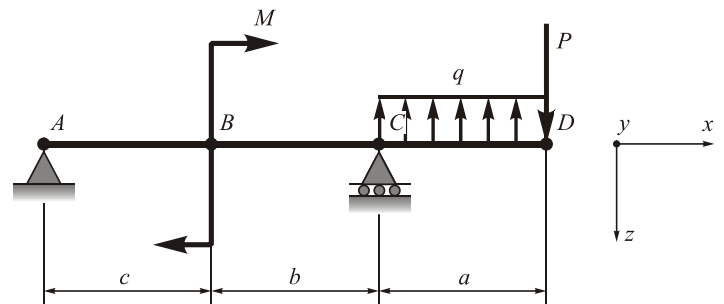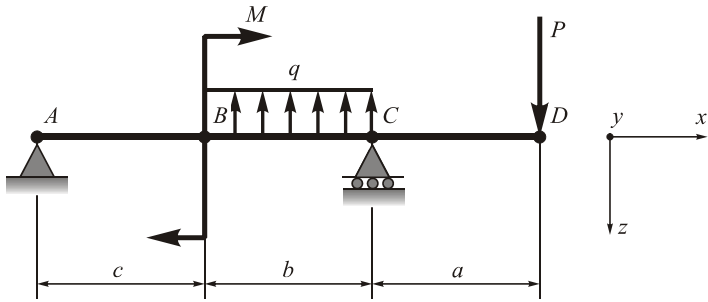**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 4   **Complexity: 1**

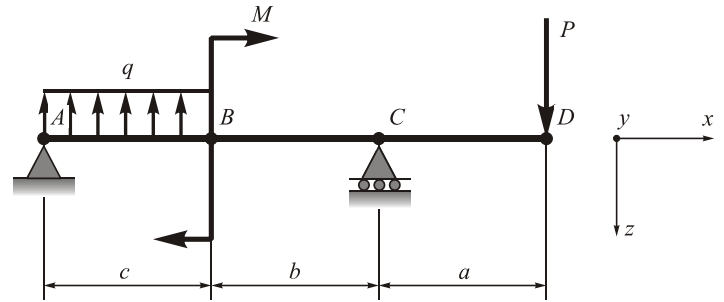**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 5   **Complexity: 1**

M
q
P
A B C D y x
z
c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
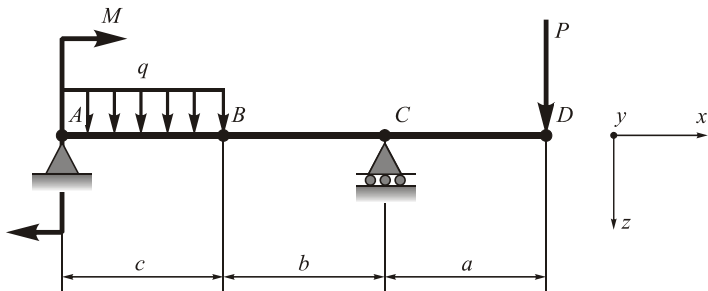
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 6   **Complexity: 1**

M
q
P
A B C D y x
z
c b a

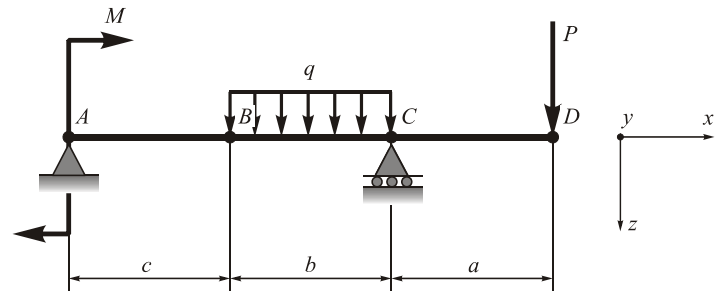**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 7   **Complexity: 1**

M
q
P
A B C D y x
z
c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 8   **Complexity: 1**

M
q
P
A B C D y x
z
c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
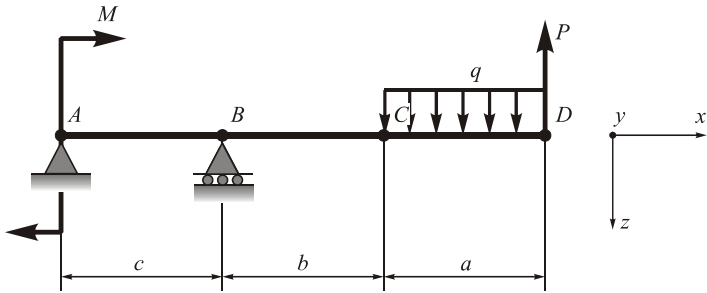
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 9   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
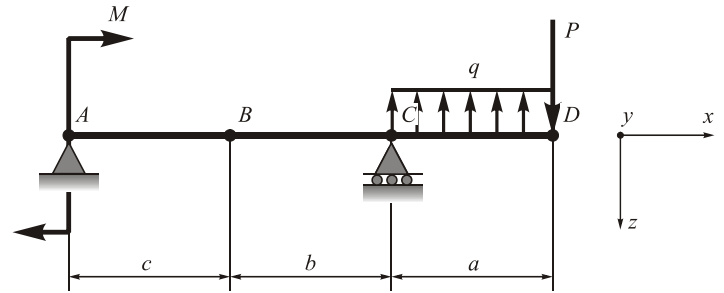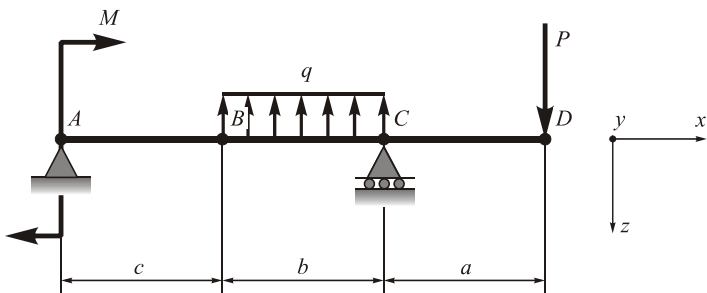
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 10   **Complexity: 1**

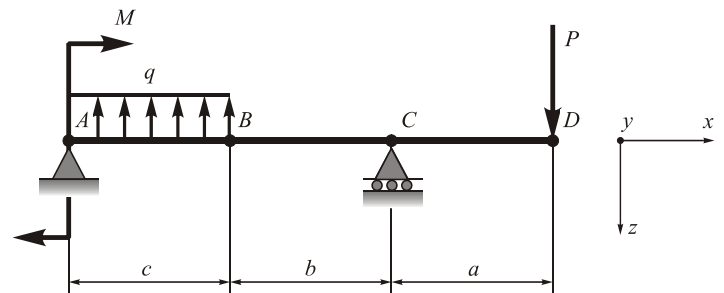**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 11   **Complexity: 1**

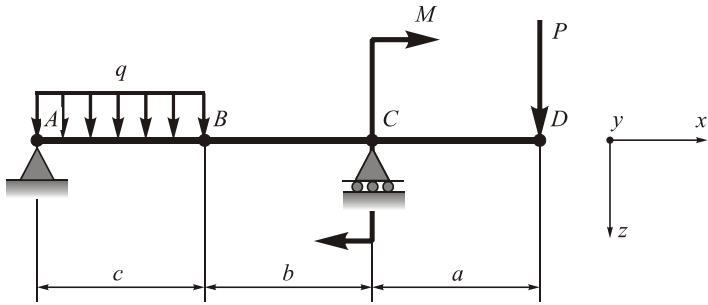**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 12   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
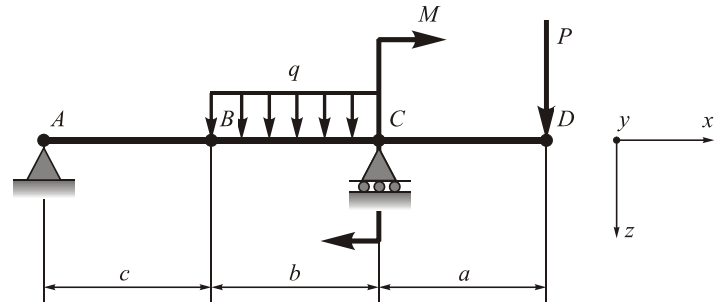
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 13   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
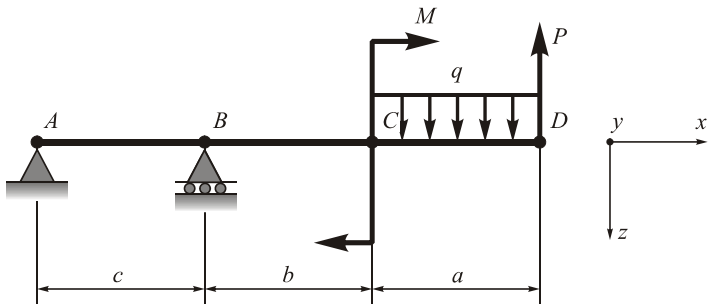
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 14   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 15   **Complexity: 1**

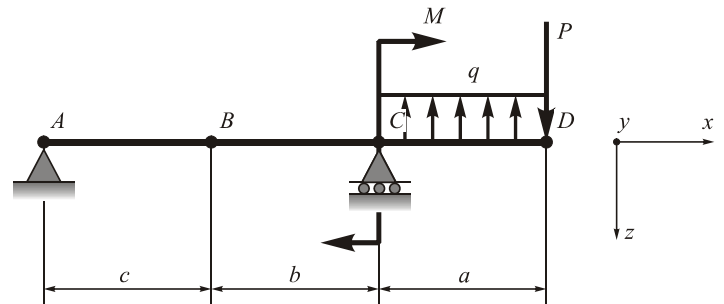**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 16   **Complexity: 1**

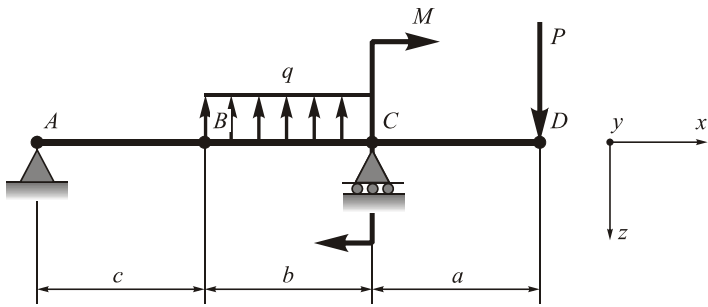**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 17   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
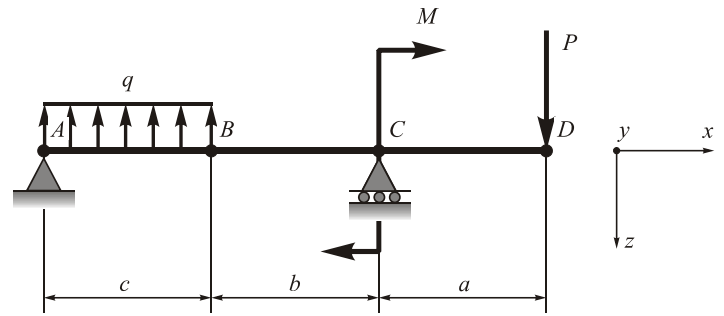
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 18   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
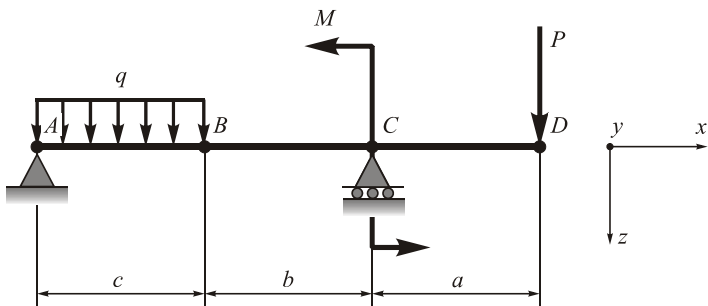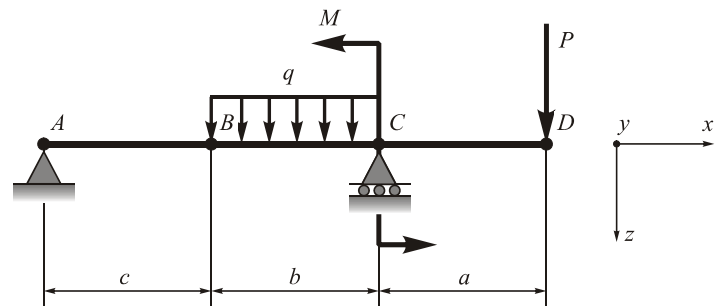
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 19   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
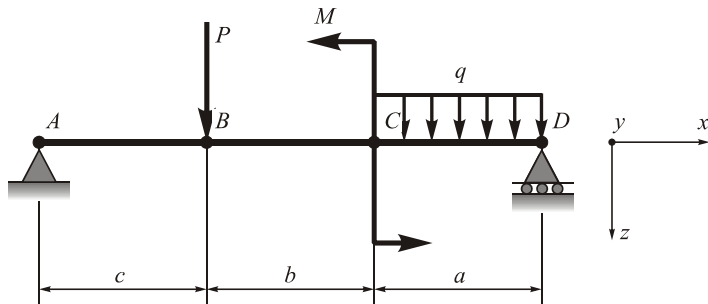
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 20   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
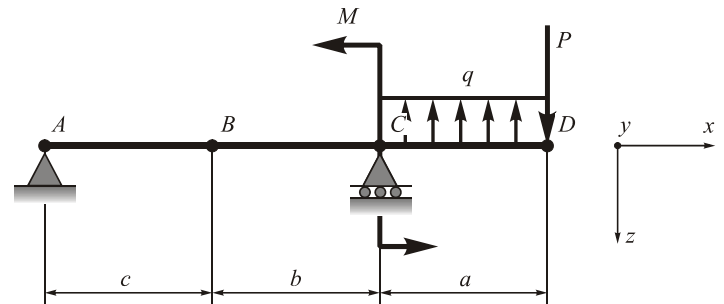
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 21   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
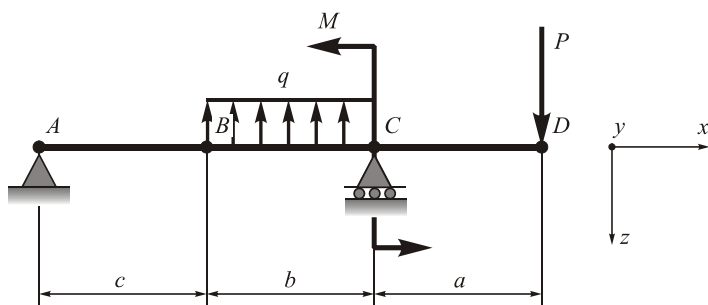
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 22   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 23   **Complexity: 1**

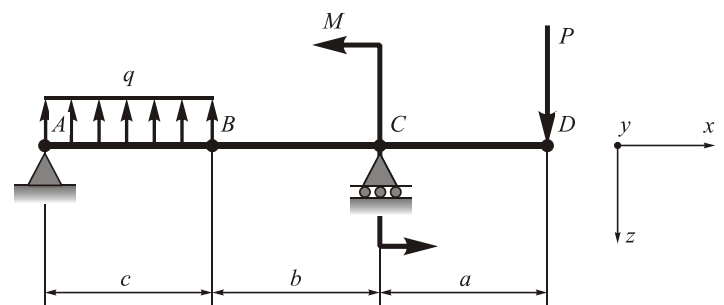**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 24   **Complexity: 1**

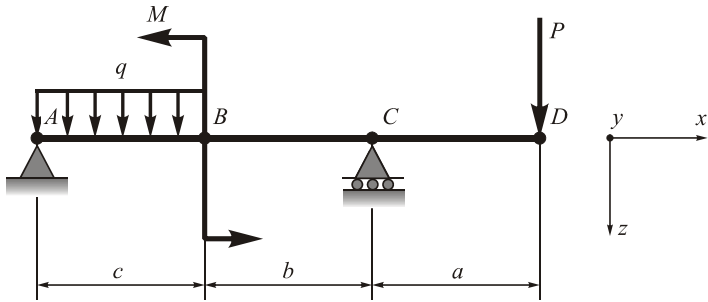**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 25   **Complexity: 1**

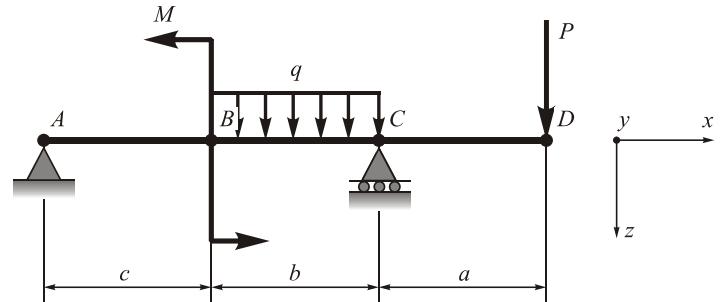**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 26   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
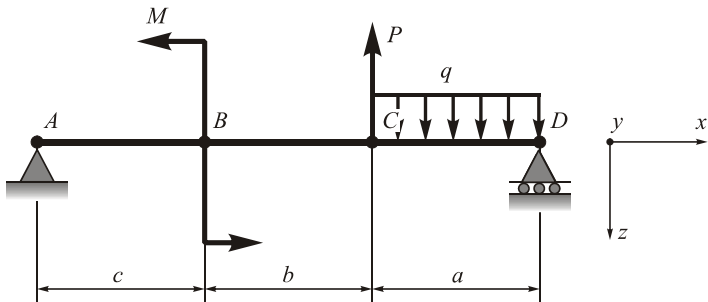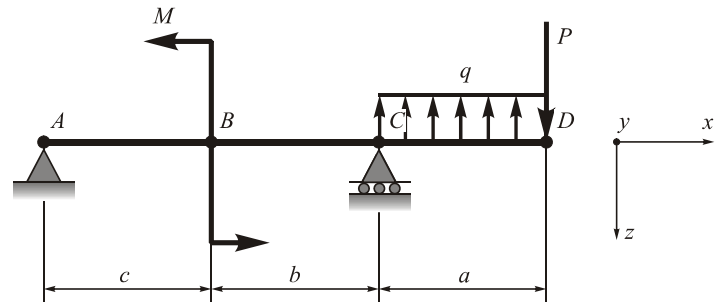
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 27   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

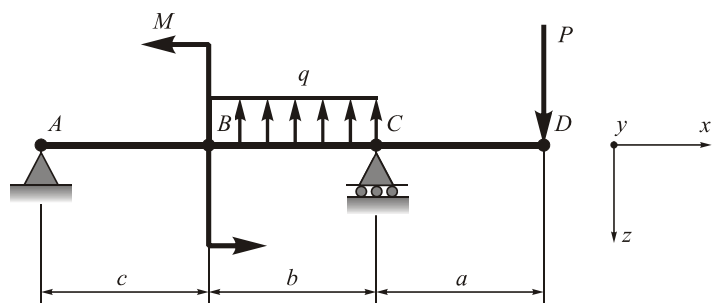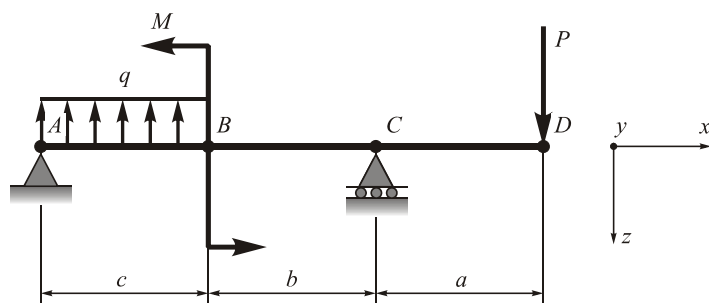**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 28   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 29   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 30   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 31   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 32   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
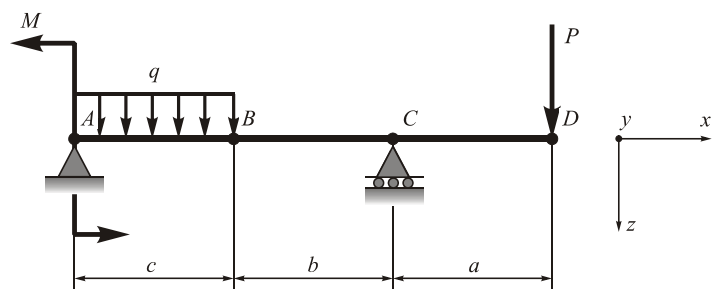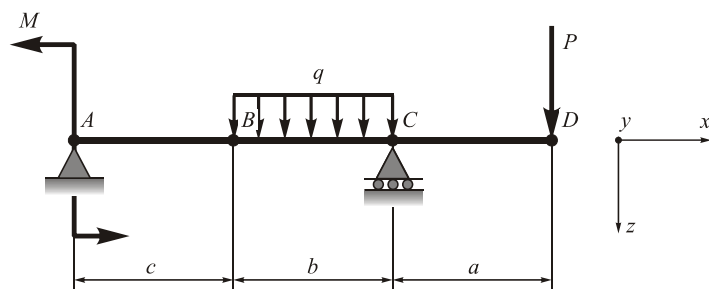
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 33   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 34   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 35   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 36   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
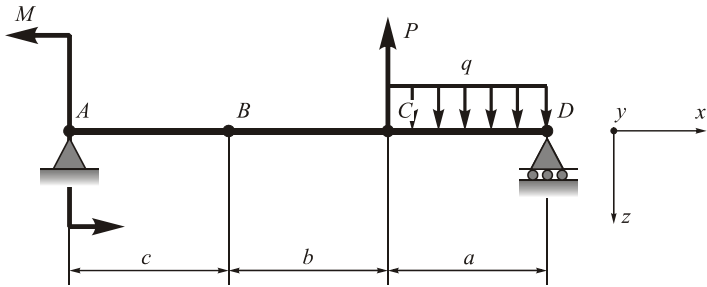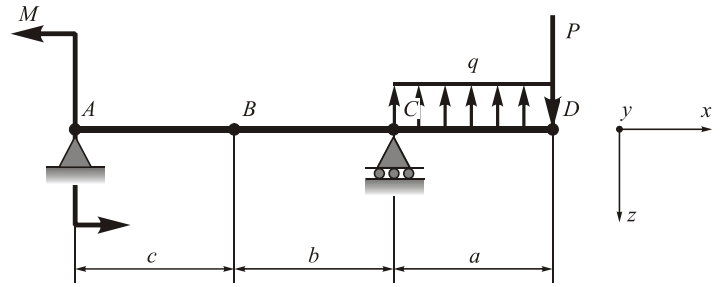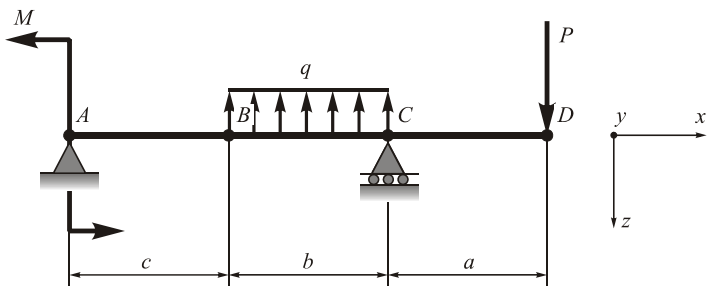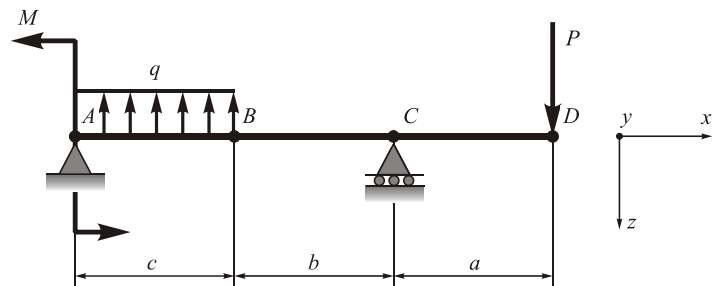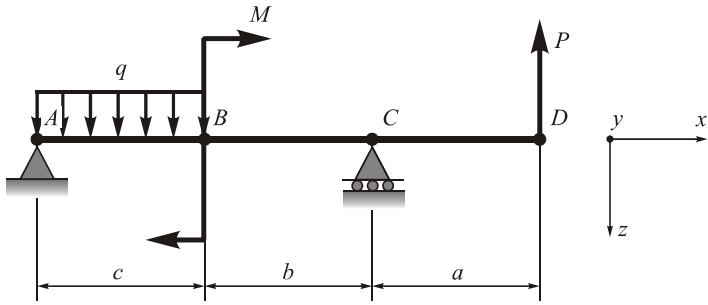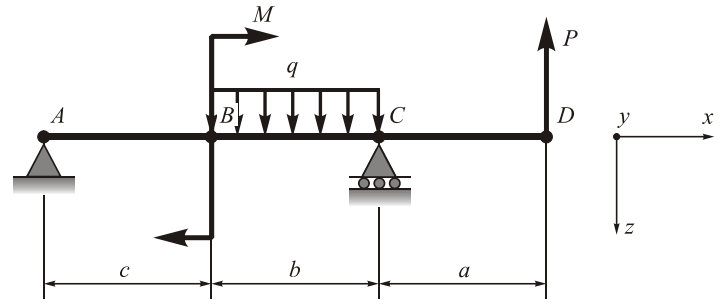
Full name of the lecturer   **signature**

Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 37   **Complexity: 1**

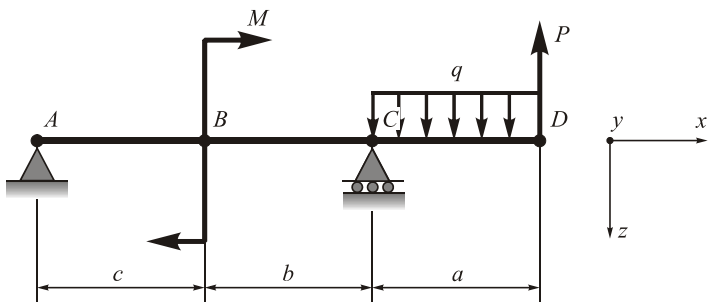**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 38   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
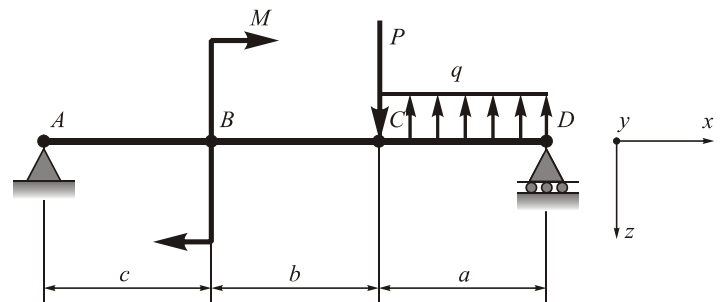
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 39   **Complexity: 1**

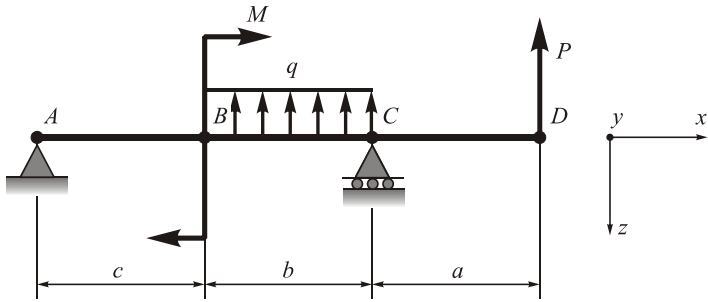**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 40   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
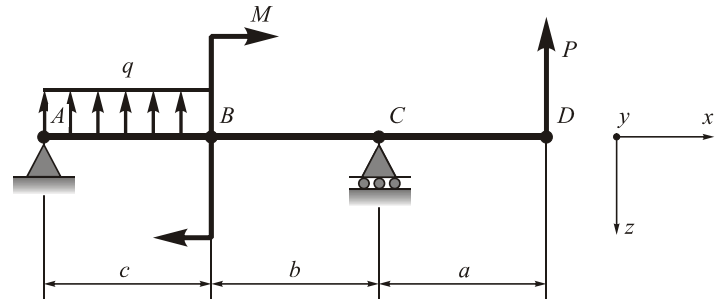
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 41　　　　　　　　　**Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
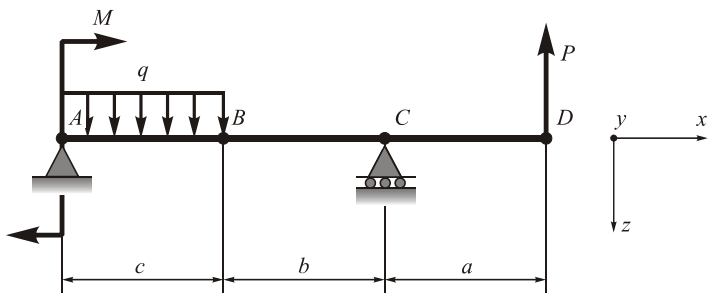
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer　　　　　　　　　**signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 42　　　　　　　　　**Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
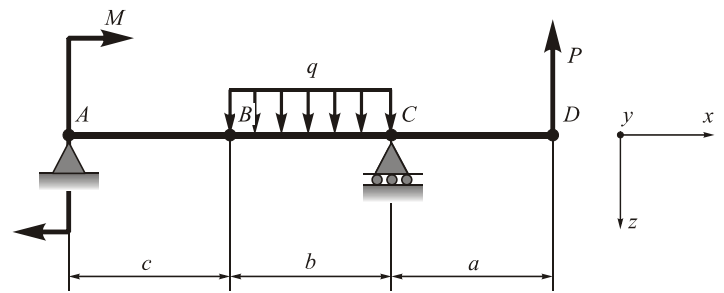
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer　　　　　　　　　**signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
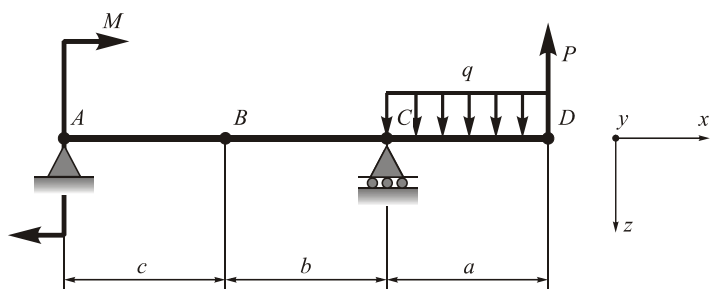
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 43　　　　　　　　　**Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer　　　　　　　　　**signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
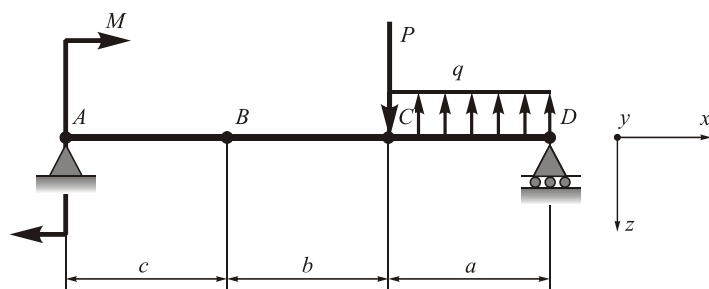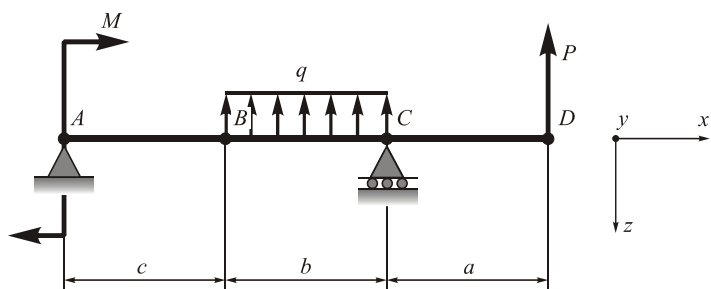
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 44　　　　　　　　　**Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer　　　　　　　　　**signature**

Mark:

Variant: 45   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 46   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 47   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 48   **Complexity: 1**

Given: q = 10 kN/m, M = 20 kNm, P = 30 kN, a = 2 m, b = 3 m, c = 4 m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
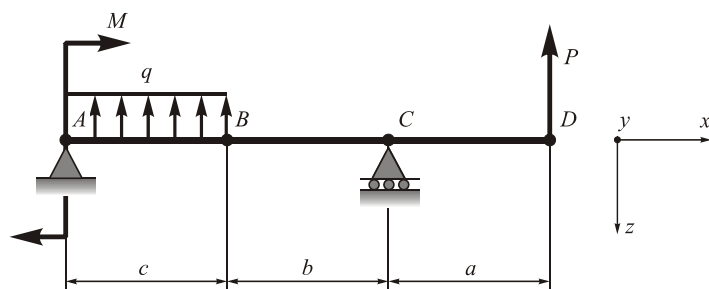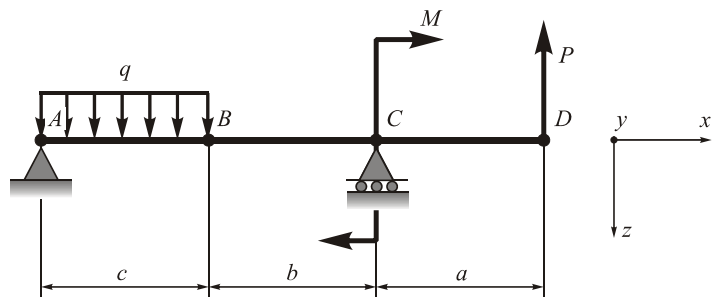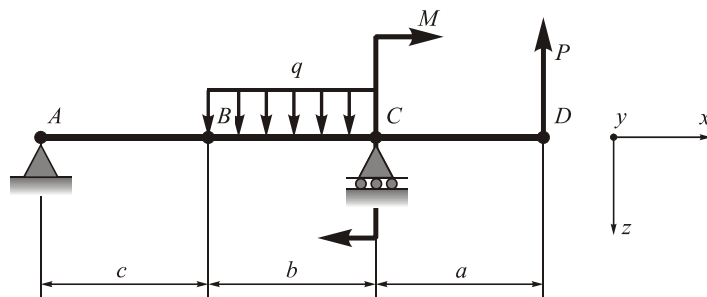
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 49 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
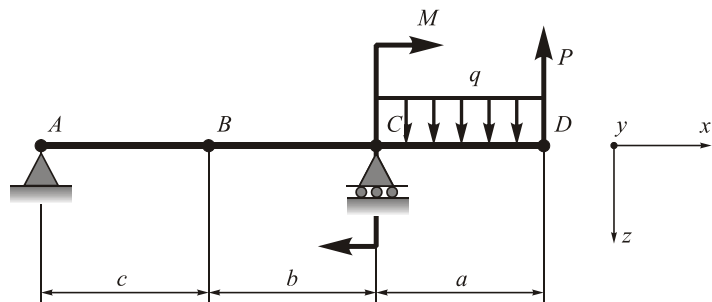
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 50 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
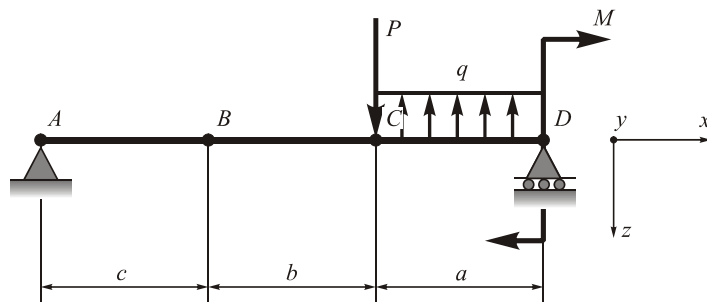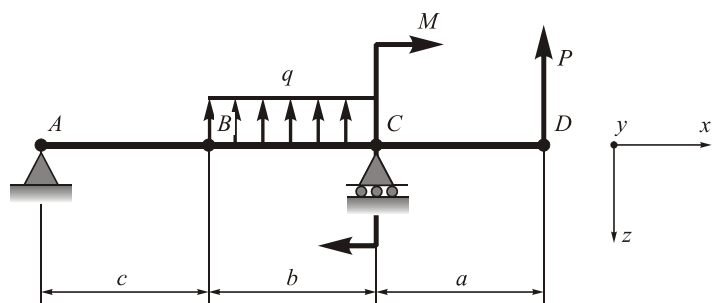
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 51 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
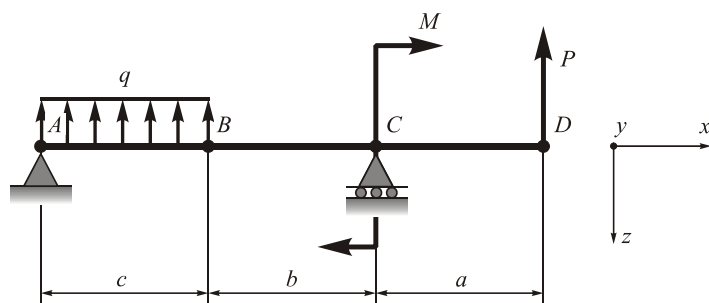
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 52 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
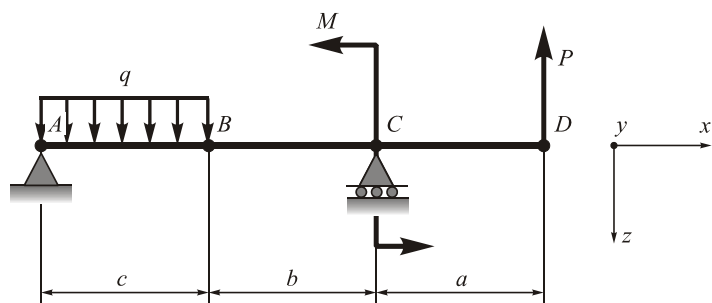## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 53   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
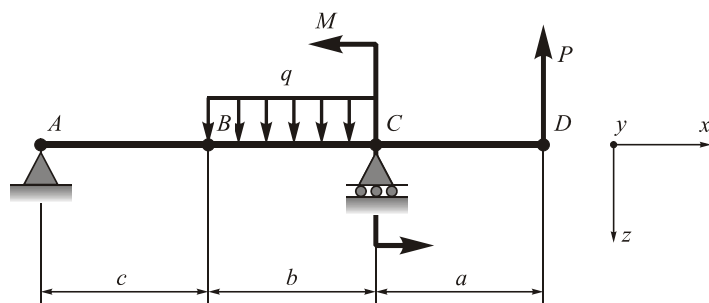## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 54   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
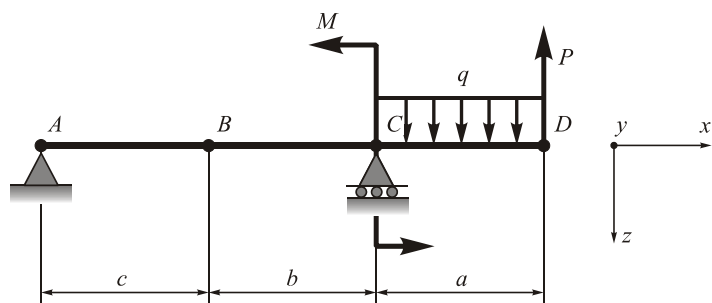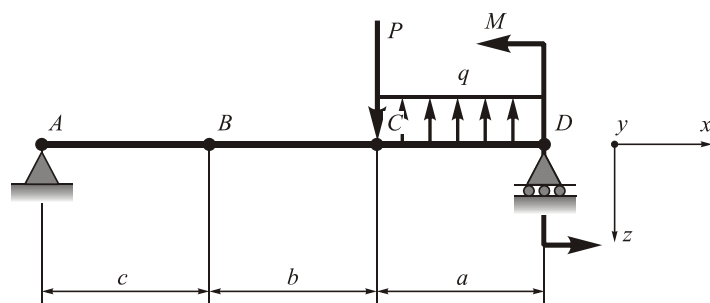## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 55   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
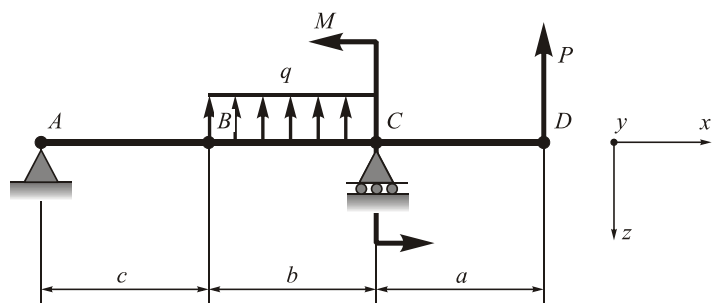## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 56   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 57   **Complexity: 1**

M q P

A B C D y x z

c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

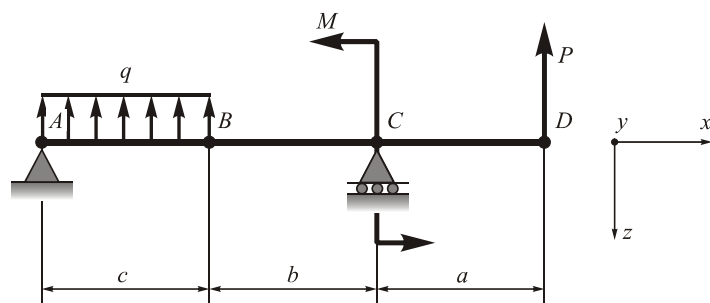**Full name of the lecturer**   **signature**

Mark:

Variant: 58   **Complexity: 1**

P M q

A B C D y x z

c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
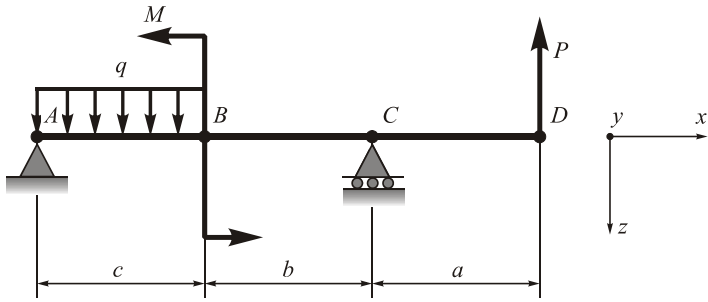
Full name of the lecturer   **signature**

Mark:

Variant: 59   **Complexity: 1**

M q P

A B C D y x z

c b a

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
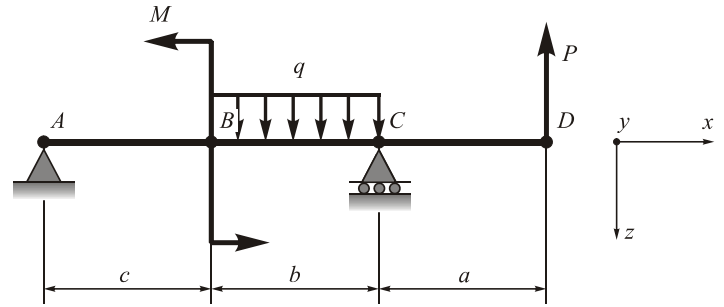
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 60   **Complexity: 1**

M q P

A B C D y x z

c b a

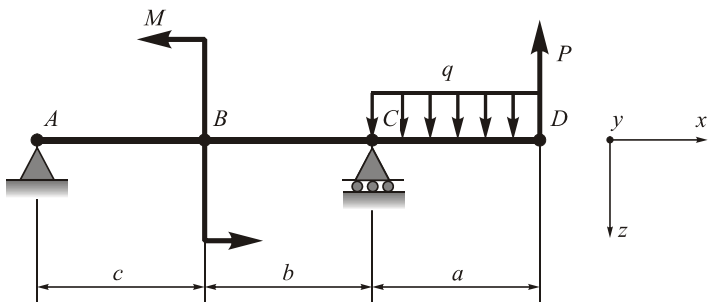**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 61   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 62   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
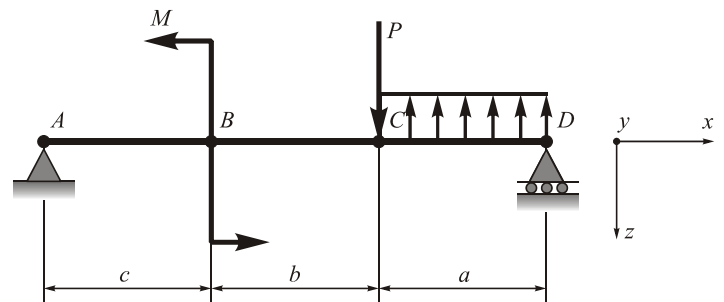
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 63   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
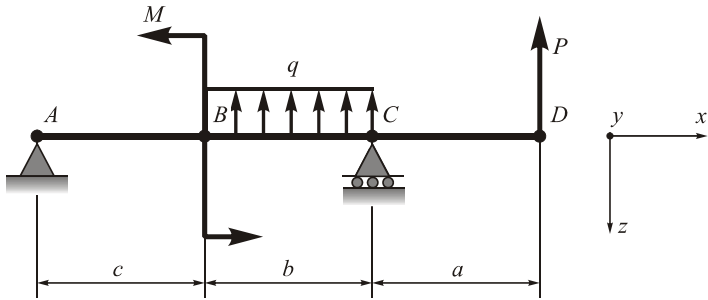
Full name of the lecturer   **signature**

Mark:

Variant: 64   **Complexity: 1**

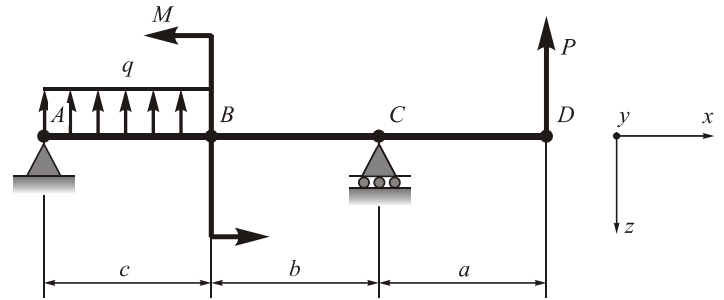**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 65 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
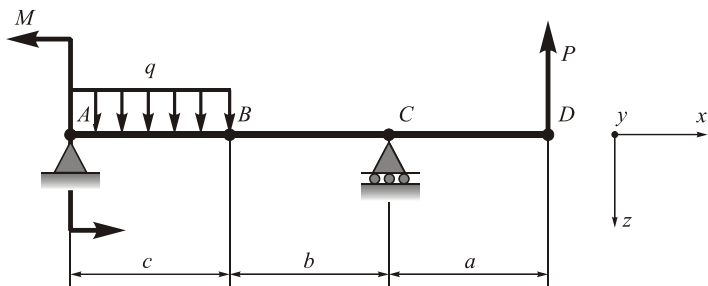
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer signature

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 66 **Complexity: 1**

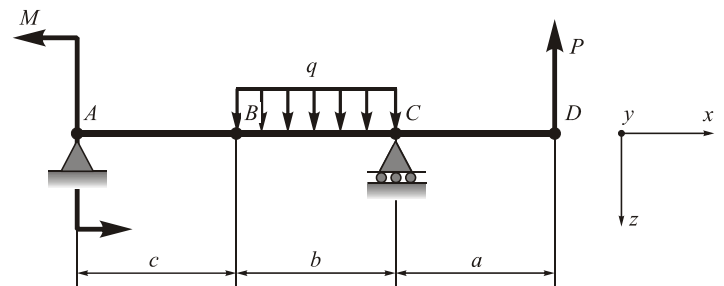**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer signature

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 67 **Complexity: 1**

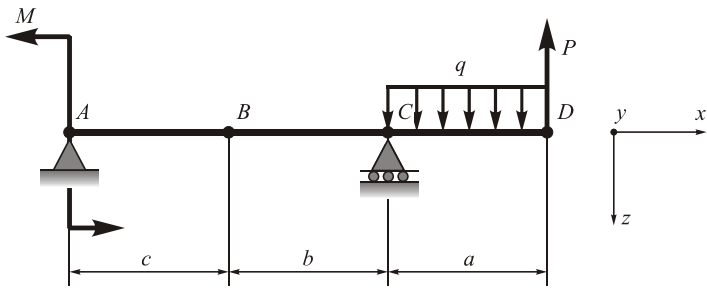**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer signature

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 68 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
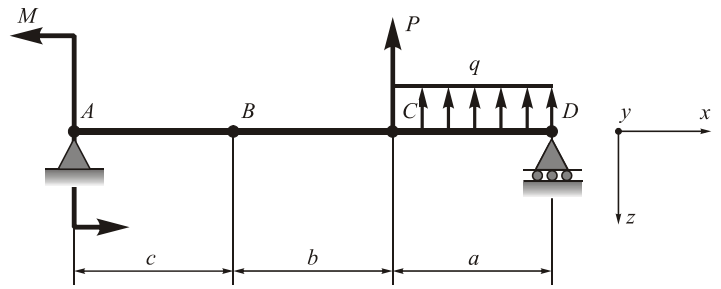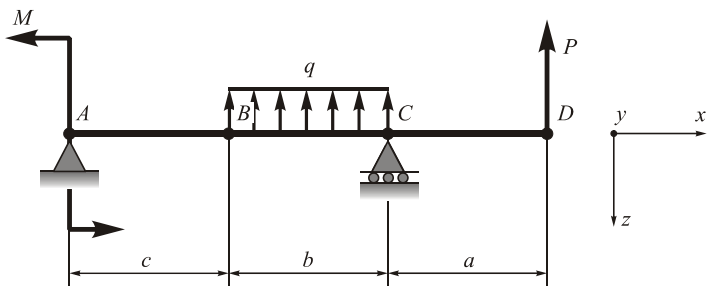
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer signature

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 69   **Complexity: 1**

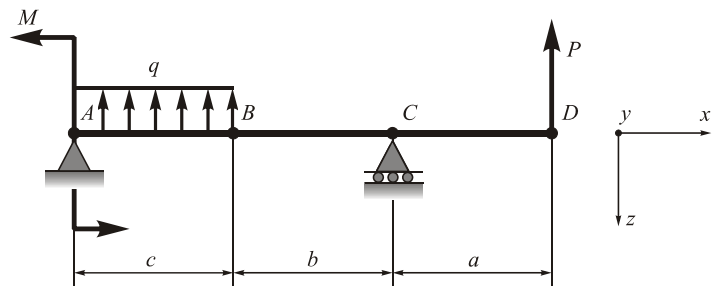**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 70   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
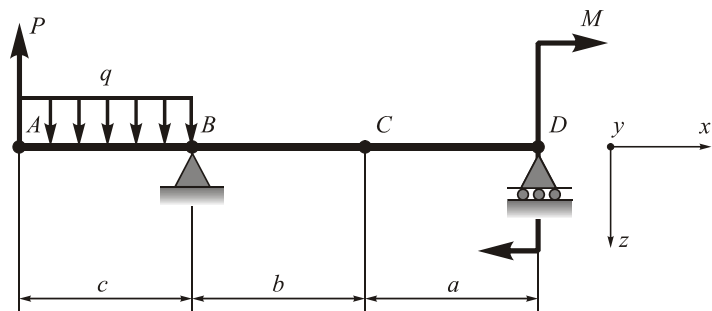
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 71   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
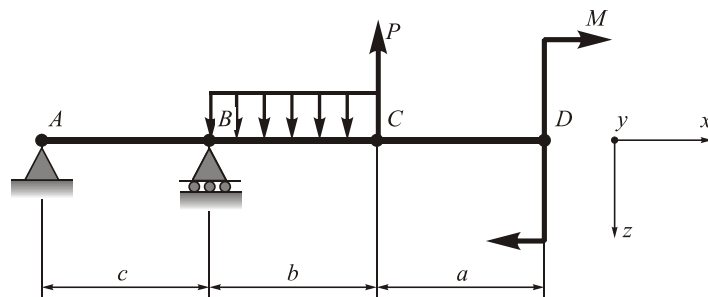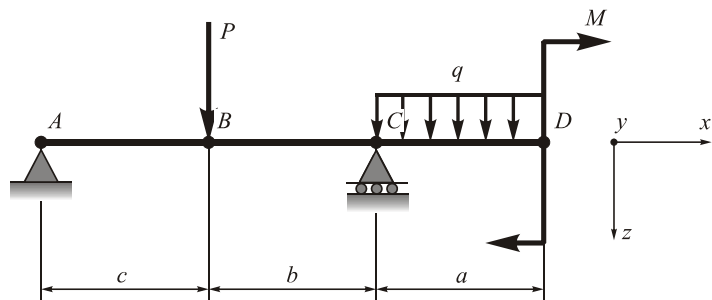**Department of aircraft strength**

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 72   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
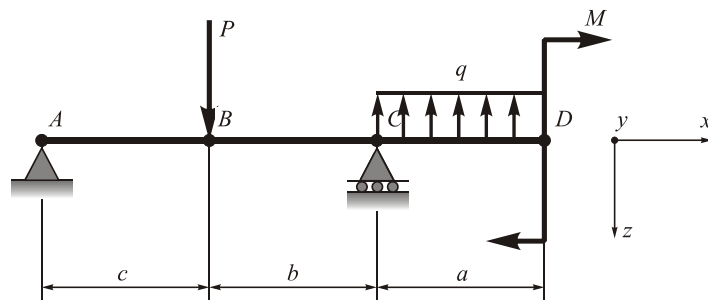**Department of aircraft strength**

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 73   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

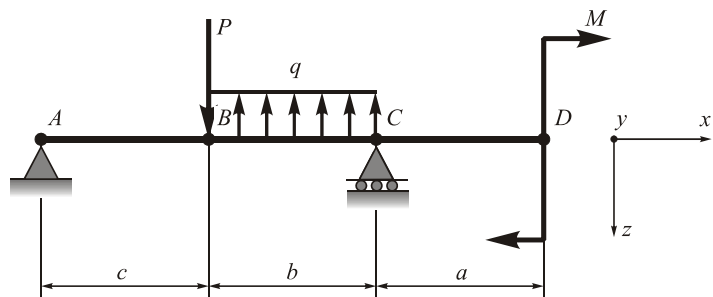---

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 74   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**
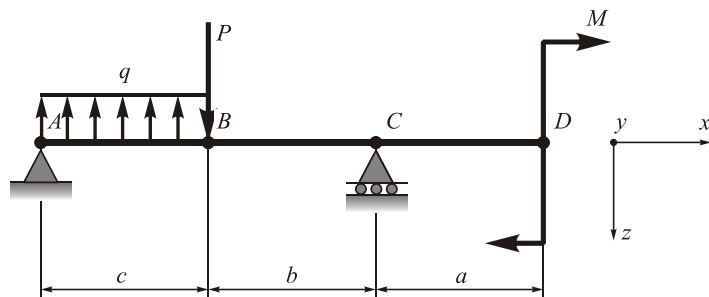
Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 75   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

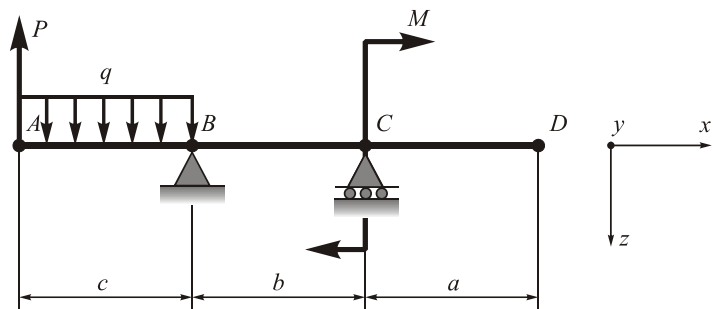**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 76   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
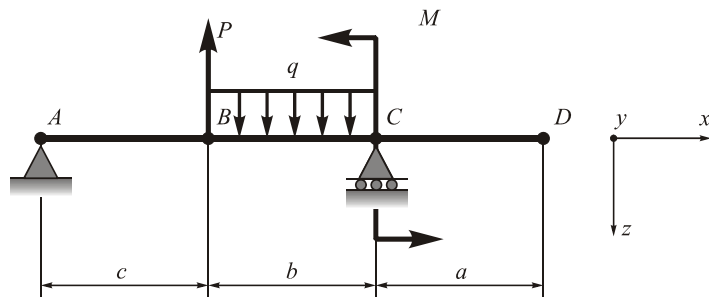
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 77   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
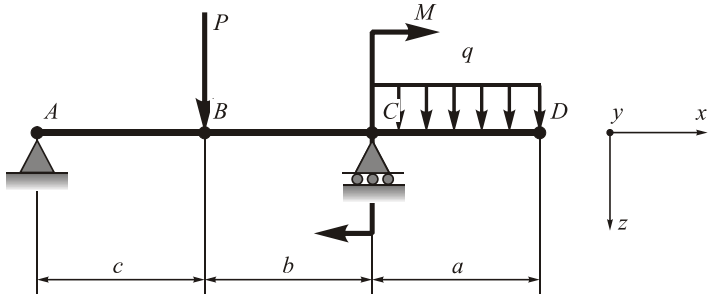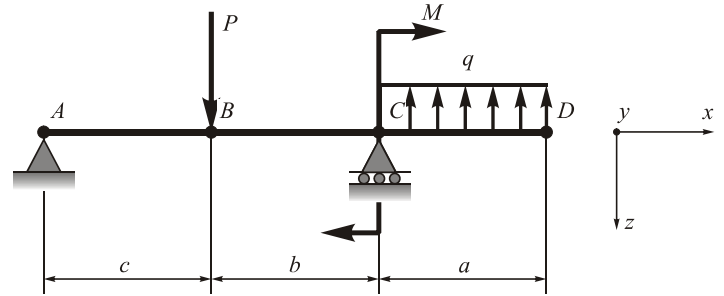
Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 78   **Complexity: 1**

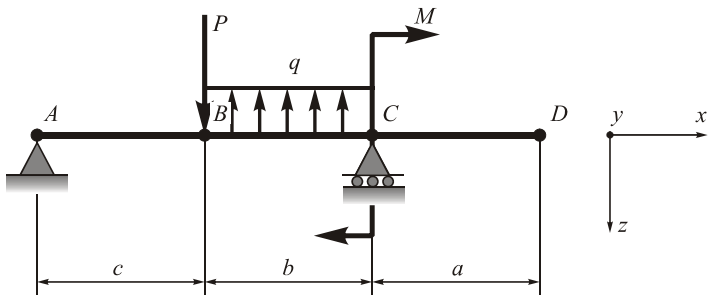**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 79   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
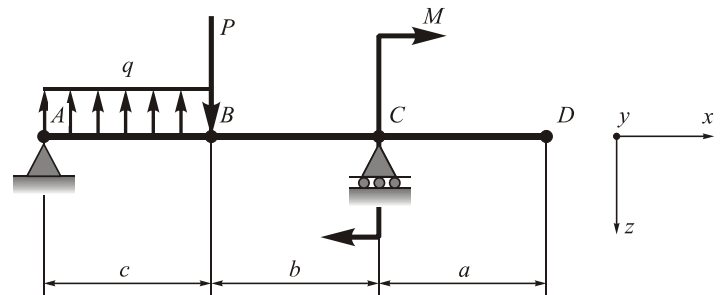
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
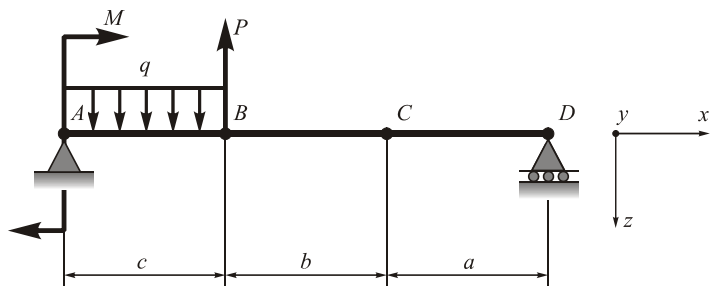## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 80   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 81 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

Variant: 82 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

Variant: 83 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

Variant: 84 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
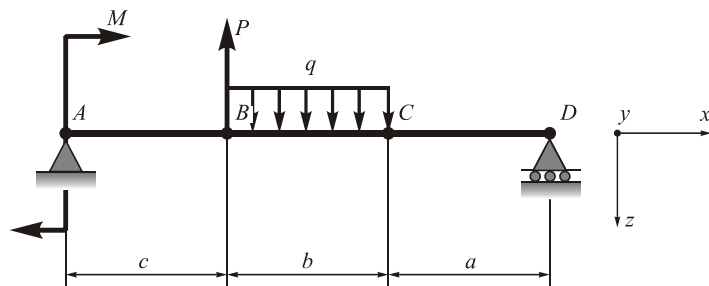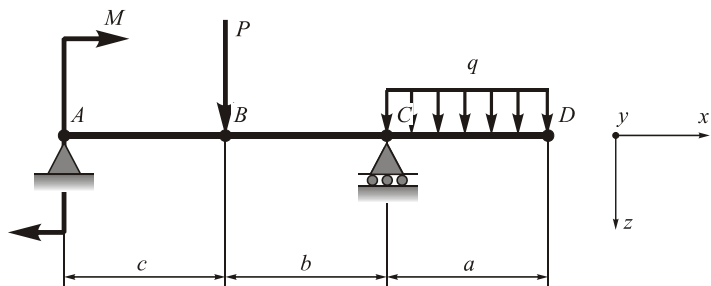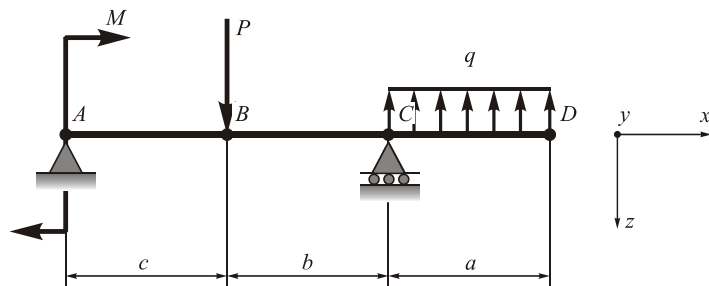
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 85   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

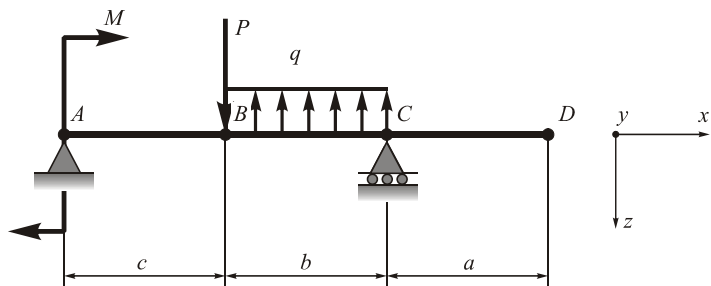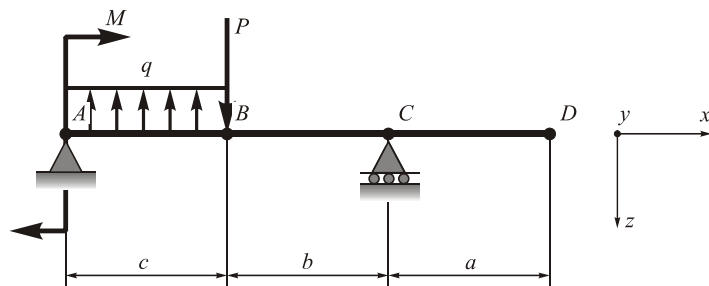**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 86   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
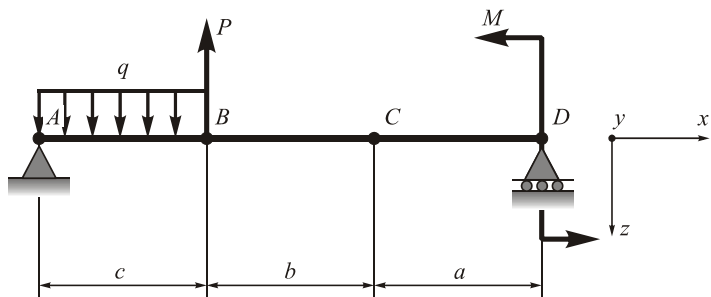
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 87   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
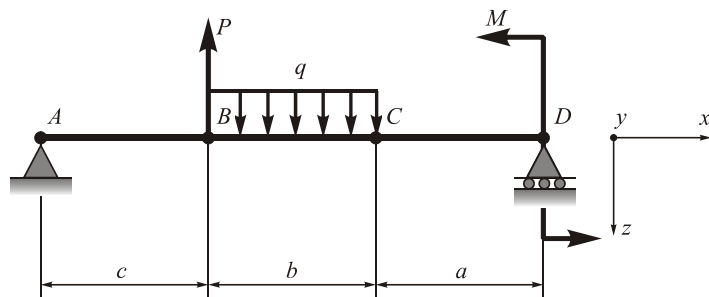
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 88   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
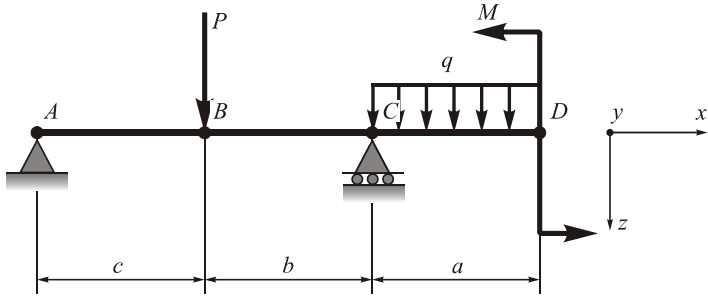
Full name of the lecturer   **signature**

Mark:

Variant: 89   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 90   **Complexity: 1**

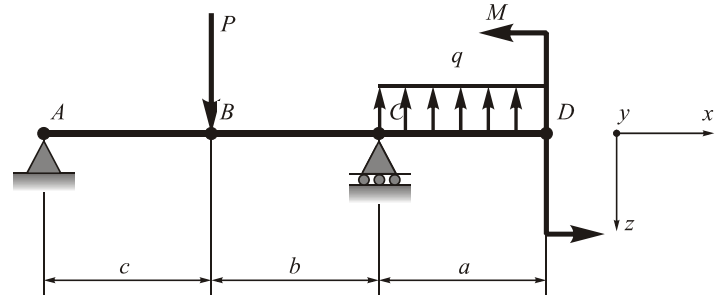**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 91   **Complexity: 1**

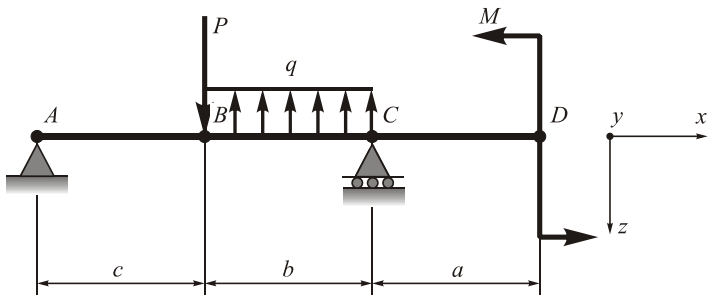**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 92   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
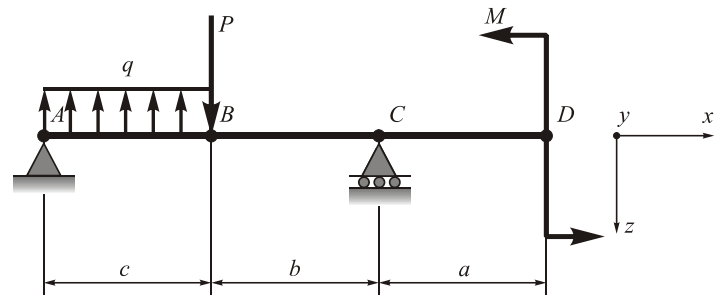
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 93 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
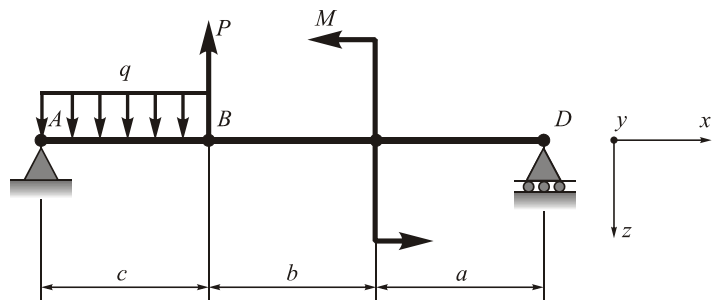
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 94 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
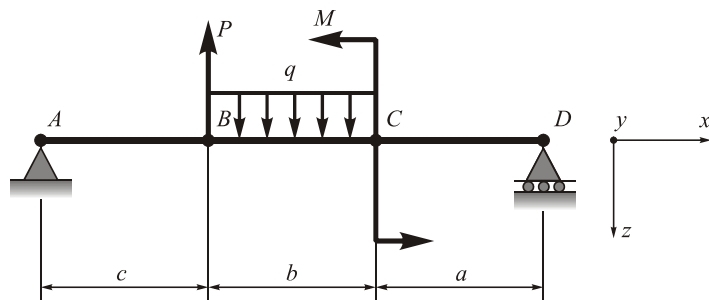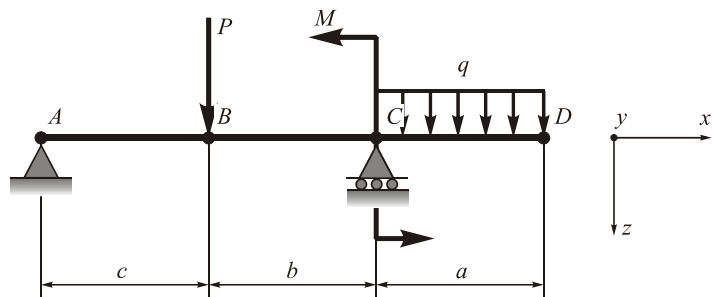
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 95 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
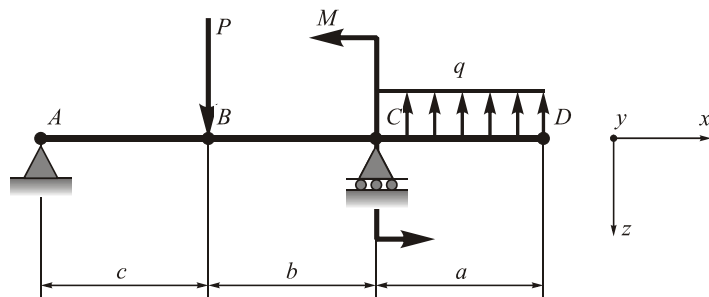
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 96 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 97   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 98   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 99   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 100   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
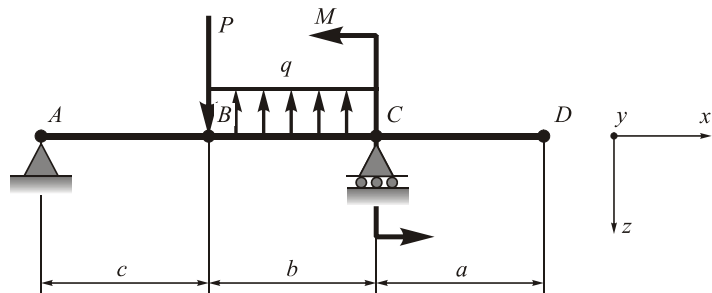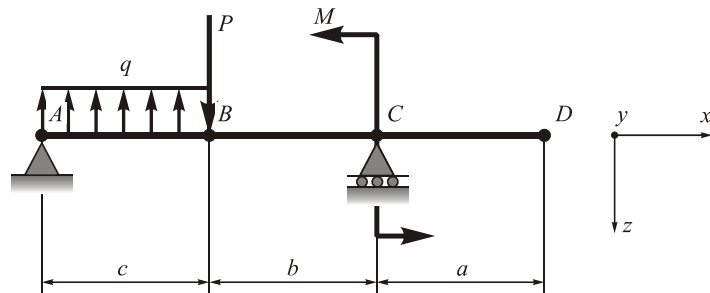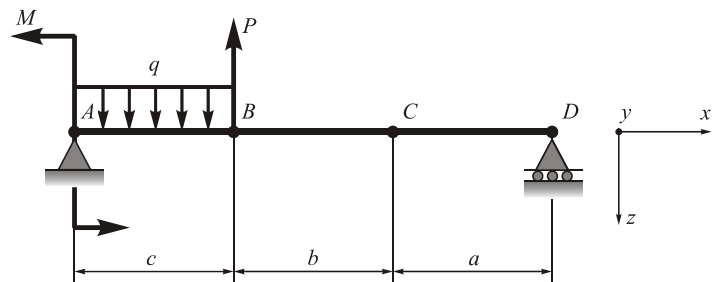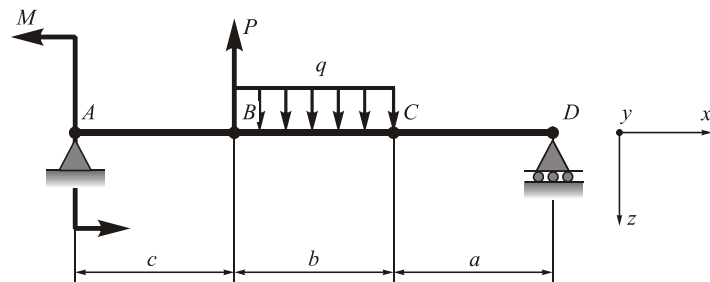
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 101   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
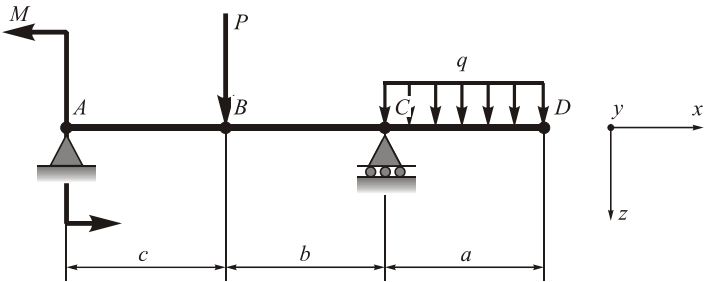
Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 102   **Complexity: 1**

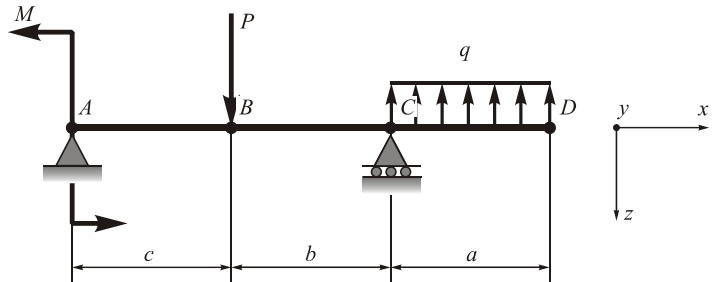**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 103   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
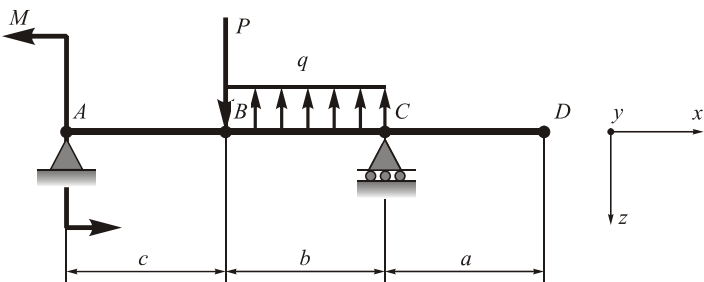
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 104   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
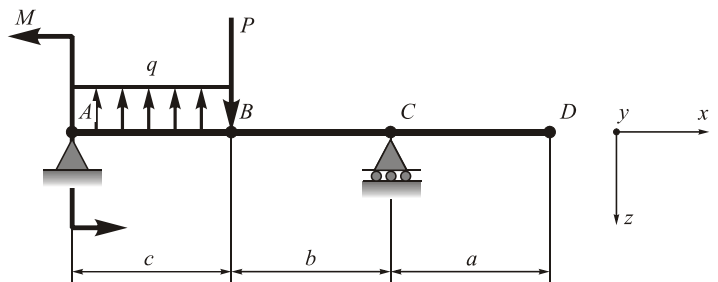
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
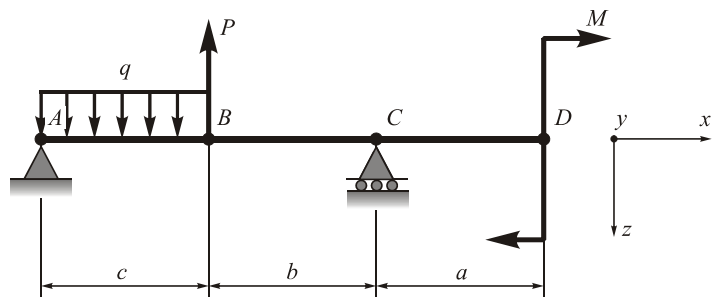
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 105 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
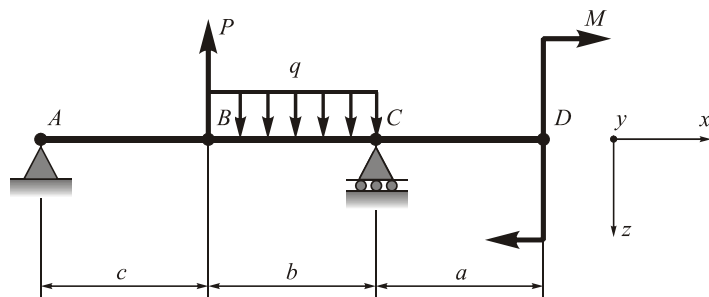
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 106 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength

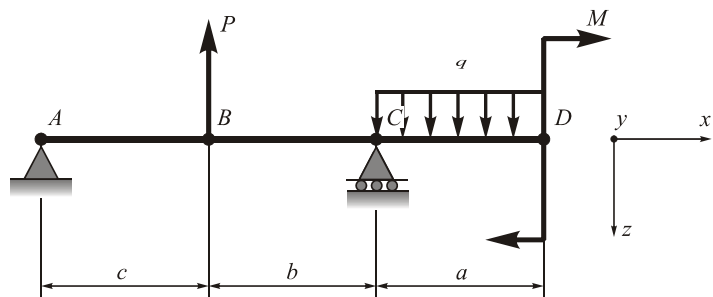**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 107 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university "Kharkiv Aviation Institute" Department of aircraft strength
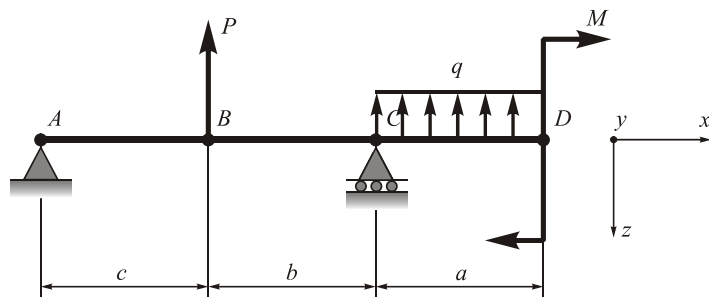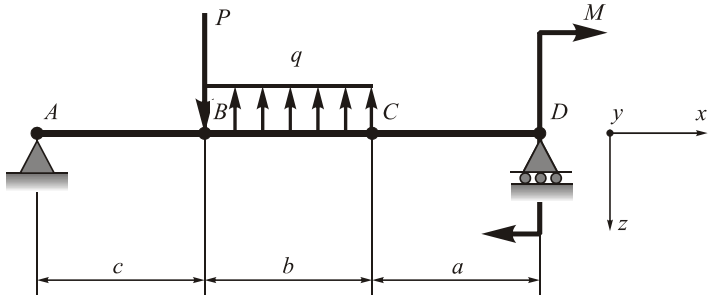
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 108 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 109   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

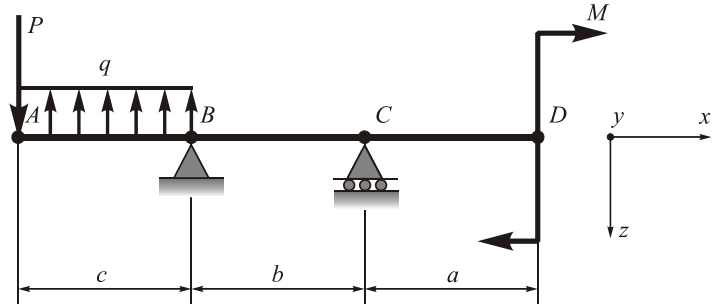**Full name of the lecturer**   **signature**

Mark:

Variant: 110   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 111   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

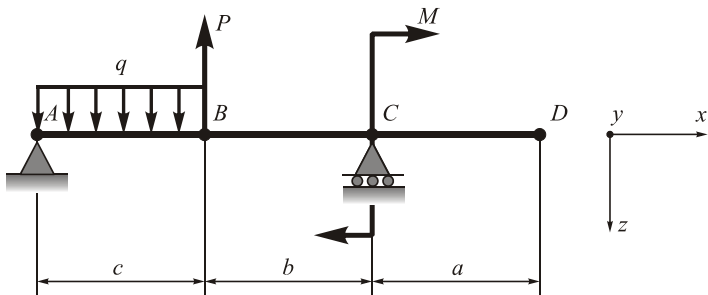**Full name of the lecturer**   **signature**

Mark:

Variant: 112   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

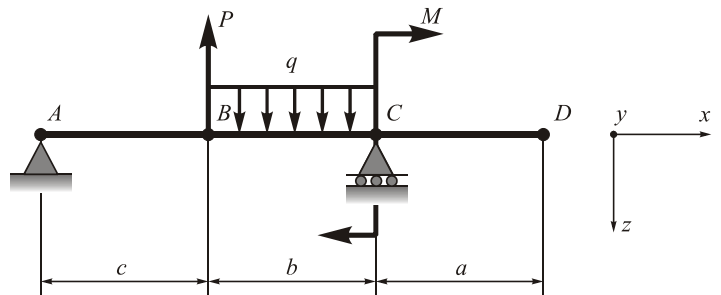**Variant: 113**   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

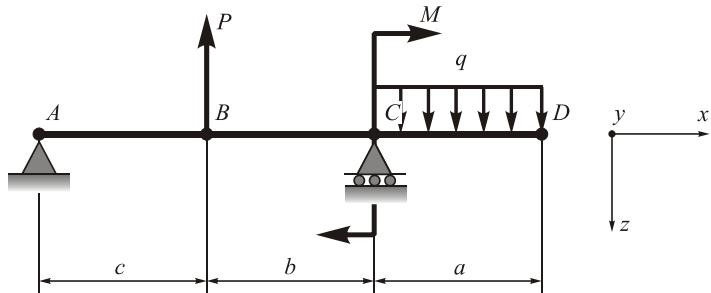**Variant: 114**   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 115   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

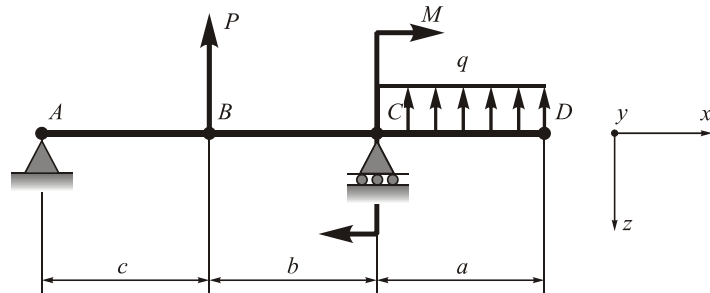**Variant: 116**   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

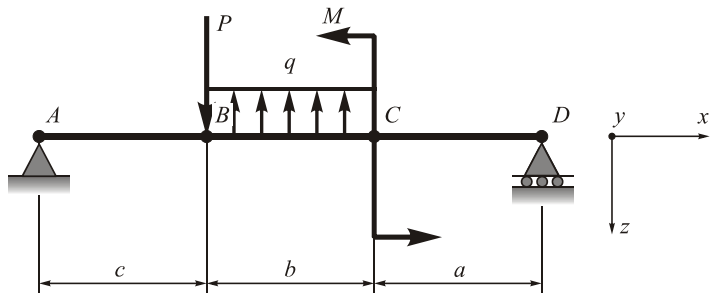**Variant: 117**   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 118   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 119   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 120   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
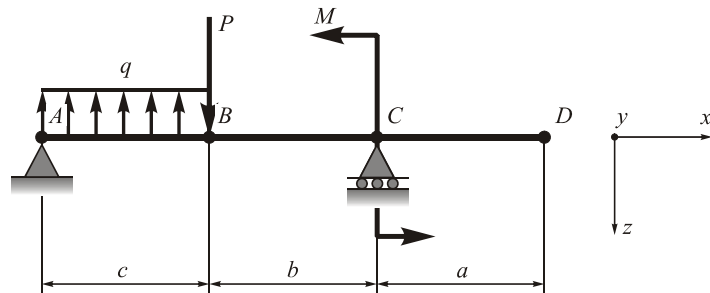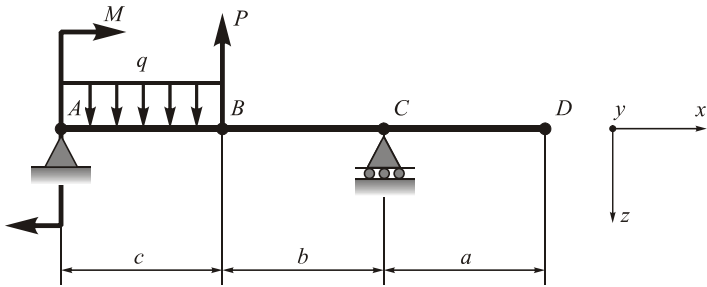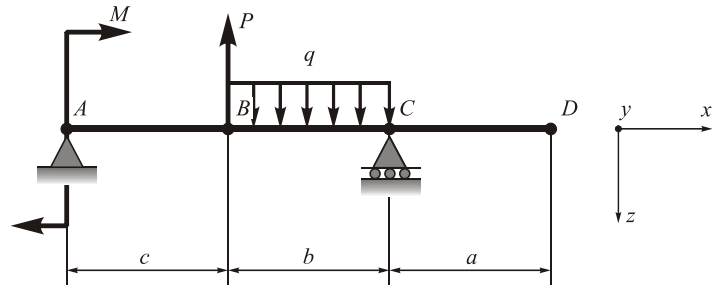
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 121 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
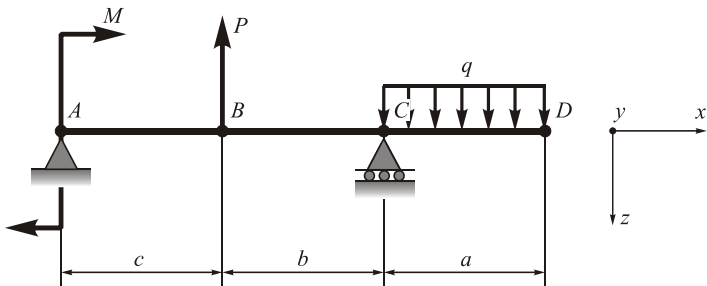
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 122 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
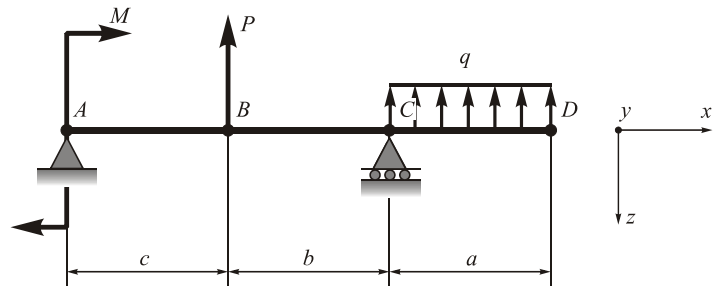
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

National aerospace university
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Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 123 **Complexity: 1**

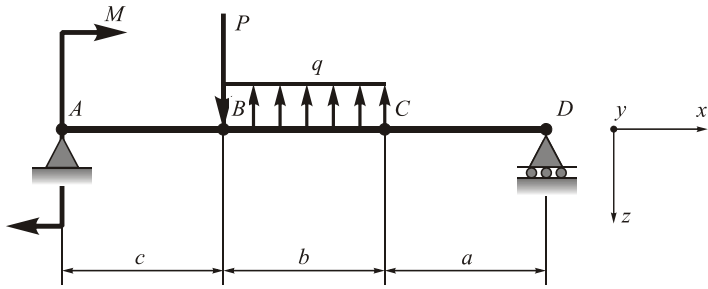**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 124 **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
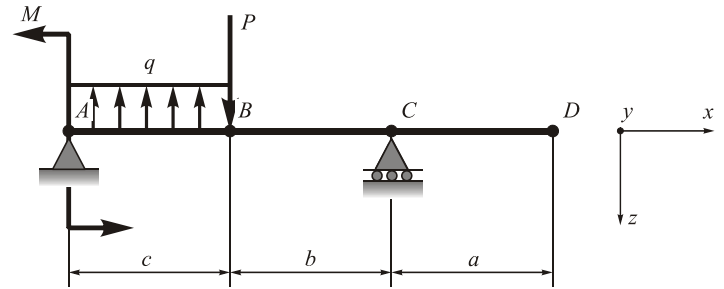
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer **signature**

Mark:

Variant: 125   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
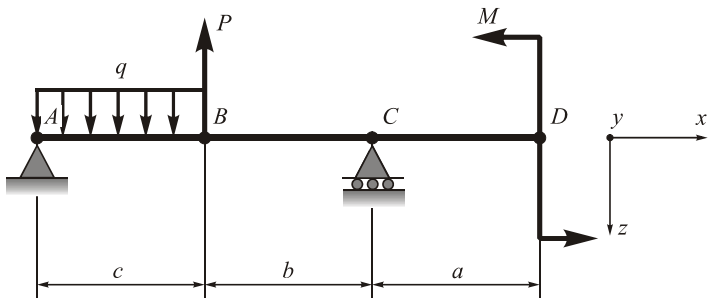
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 126   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
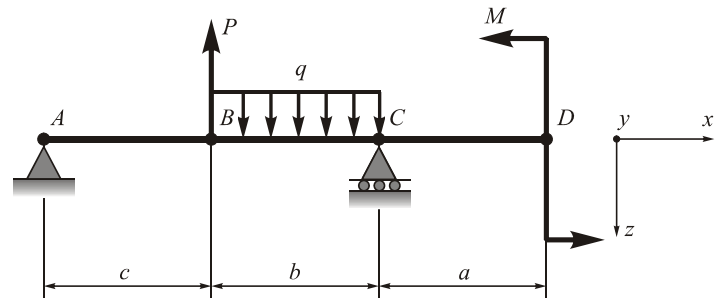
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 127   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 128   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.
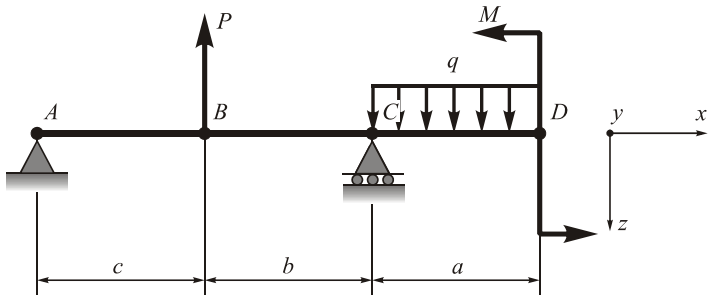
Full name of the lecturer   **signature**

Mark:

Variant: 129   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.
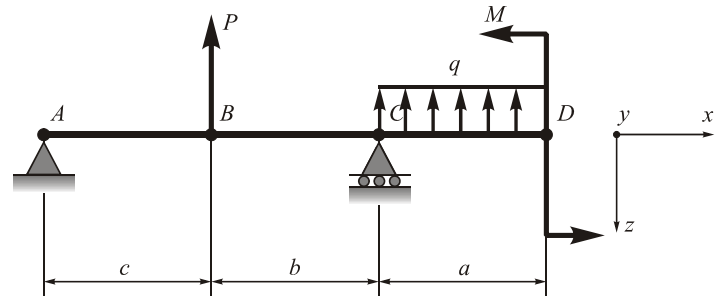
Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 130   **Complexity: 1**

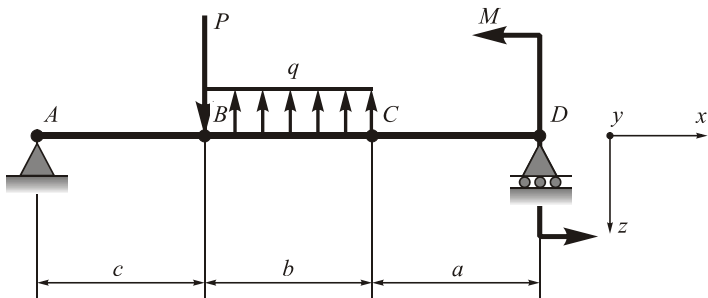**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 131   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 132   **Complexity: 1**

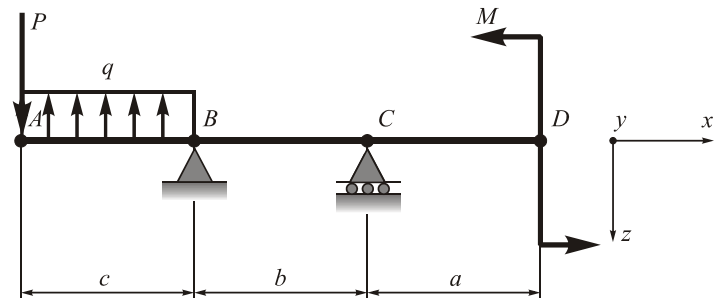**Given:** $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 133   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 134   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 135   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 136   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

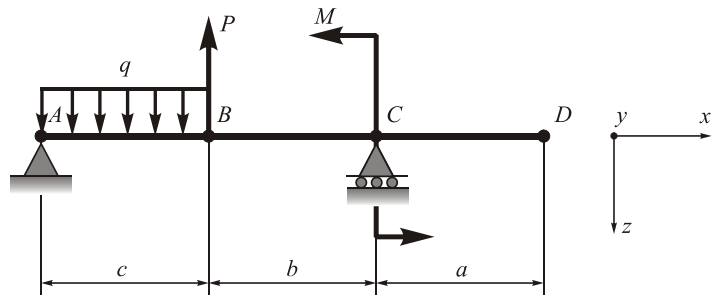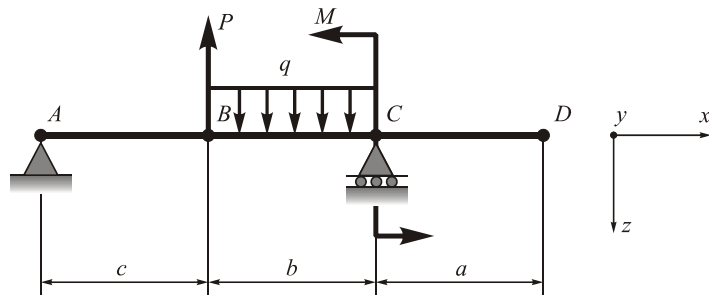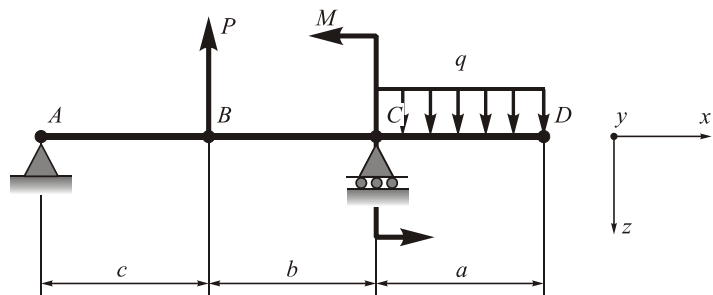**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 137   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**
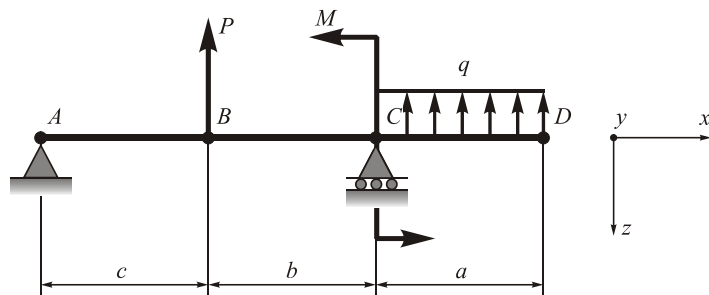
Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 138   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**
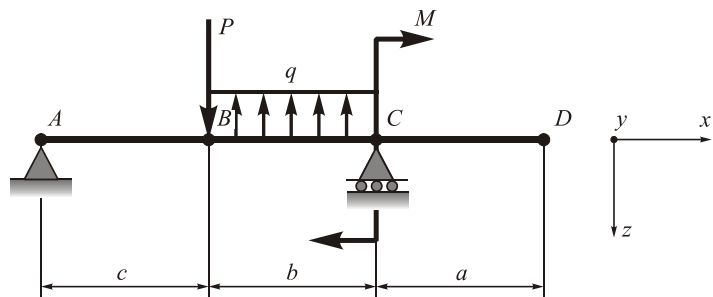
Mark:

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 139   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

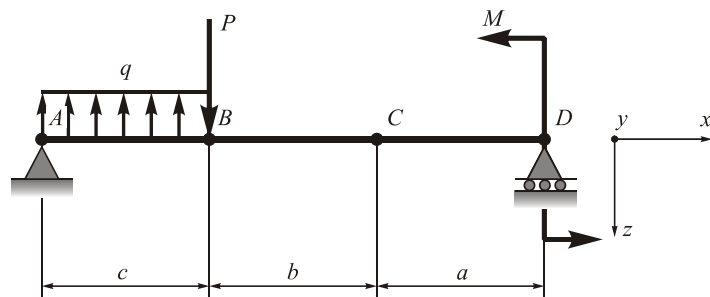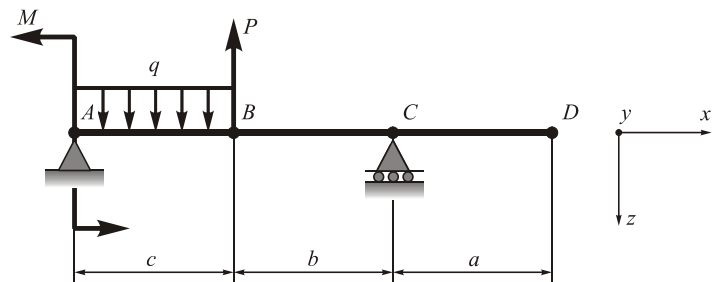**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 140   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
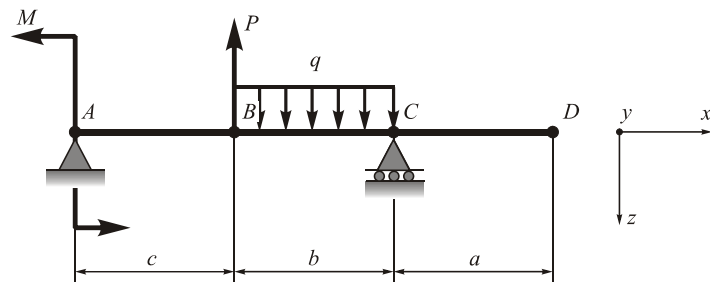## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 141   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength

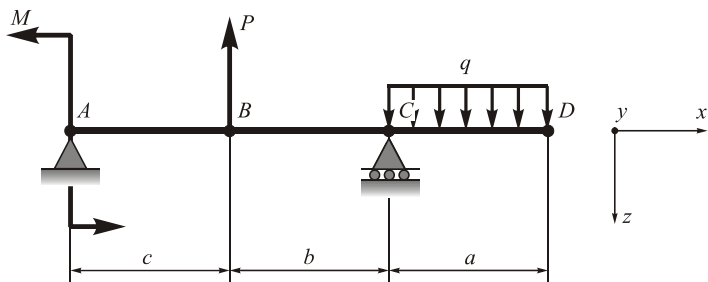**Subject:** mechanics of materials
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Variant: 142   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

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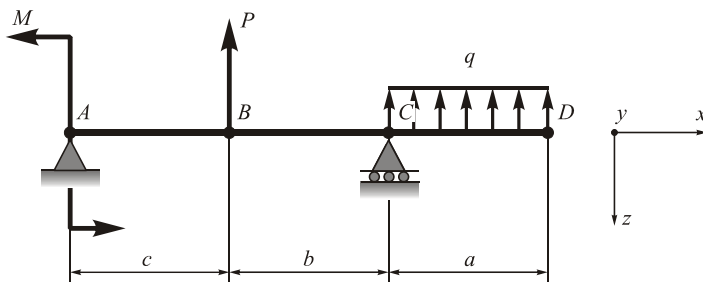
Subject: mechanics of materials
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Variant: 143   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

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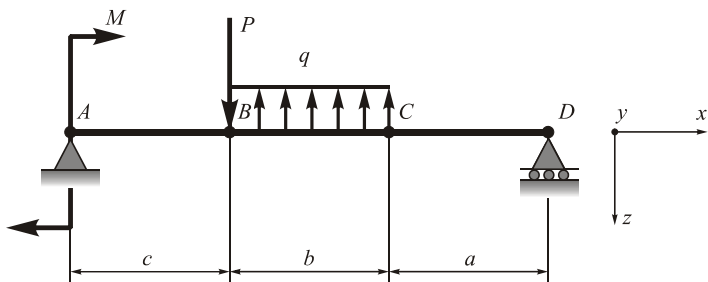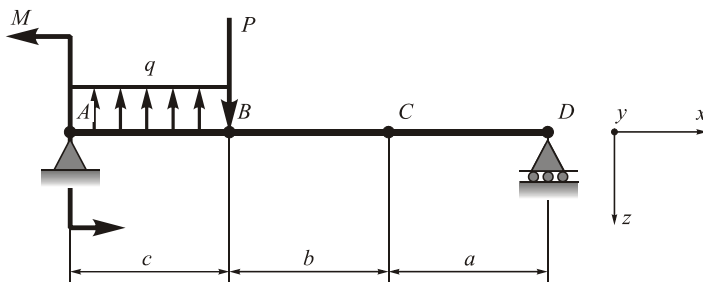
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 144   **Complexity: 1**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
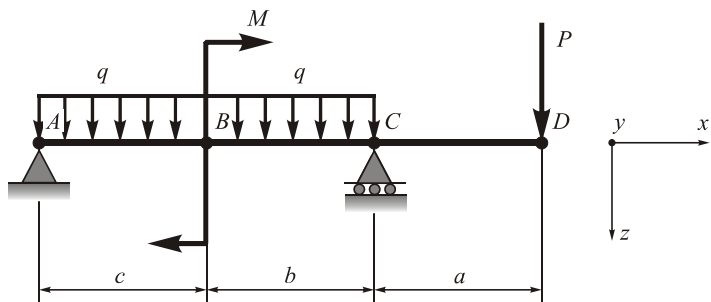## Department of aircraft strength

Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 145   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
"Kharkiv Aviation Institute"
Department of aircraft strength
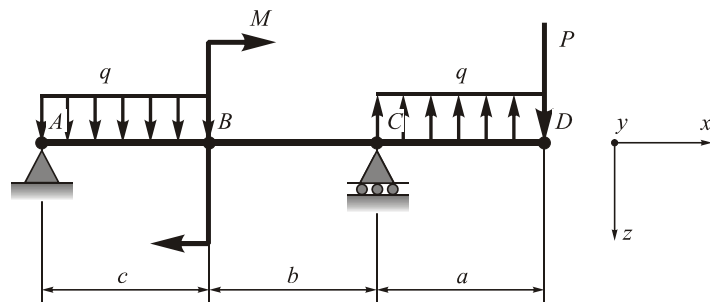
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 146   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

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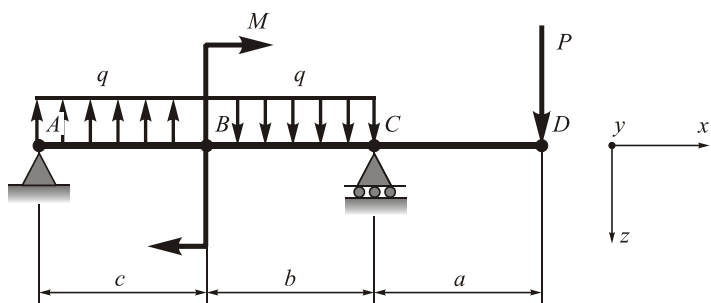**Subject:** mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 147   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

National aerospace university
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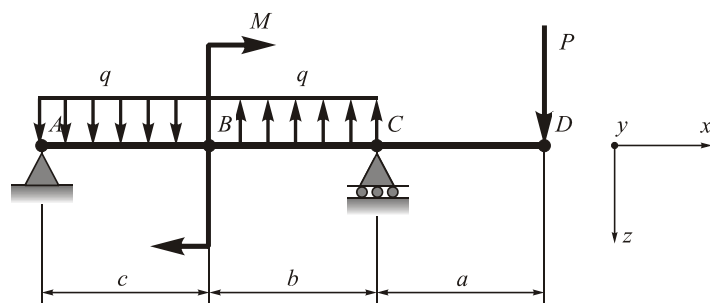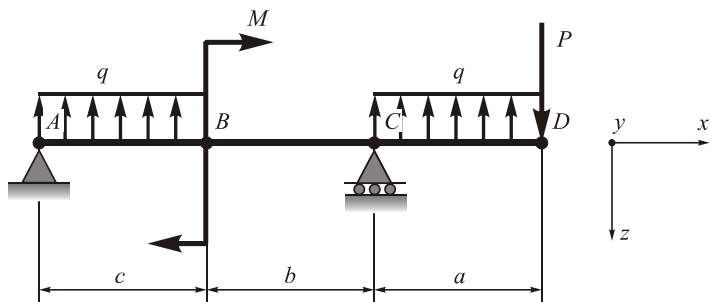
Subject: mechanics of materials
Document: home problem
Topic: graphs of shear force and bending moment distribution along the length of a beam in plane bending deformation.
Full name of the student, group

Variant: 148   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 149   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark:

Variant: 150   **Complexity: 2**

Given: $q = 10$ kN/m, $M = 20$ kNm, $P = 30$ kN, $a = 2$ m, $b = 3$ m, $c = 4$ m.

Goal: obtain the equations of shear force and bending moment in the cross-sections of a beam and design the graphs of their distribution along the beam length.

Full name of the lecturer   **signature**

Mark: