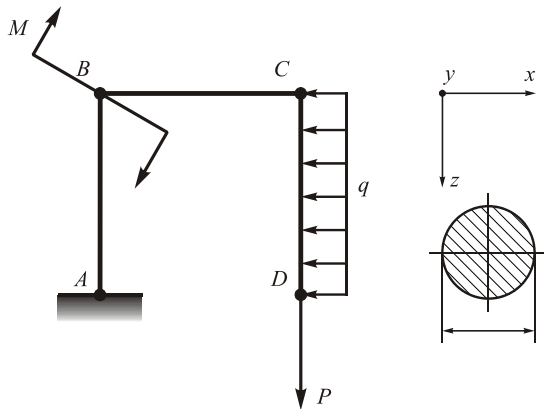


Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 1 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

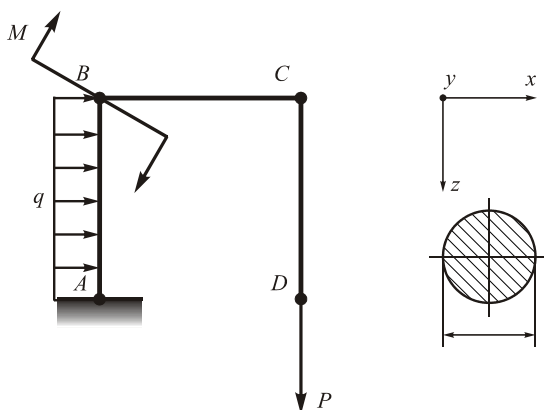
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 3 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

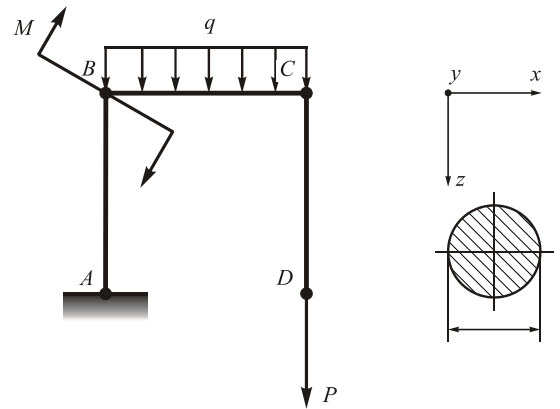
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 2 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

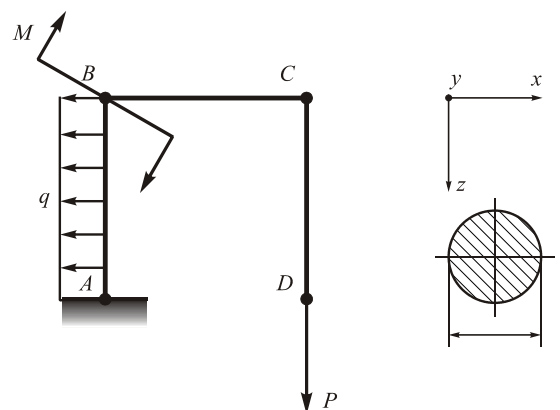
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 4 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

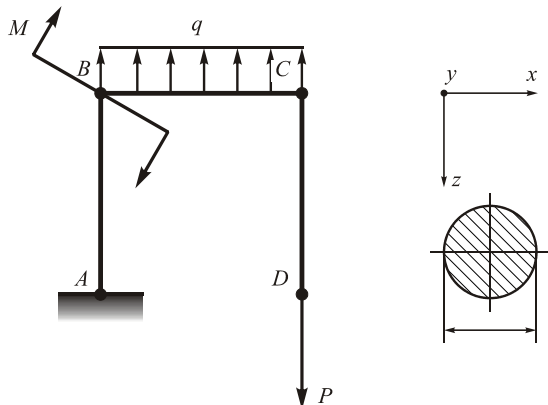
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 5 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

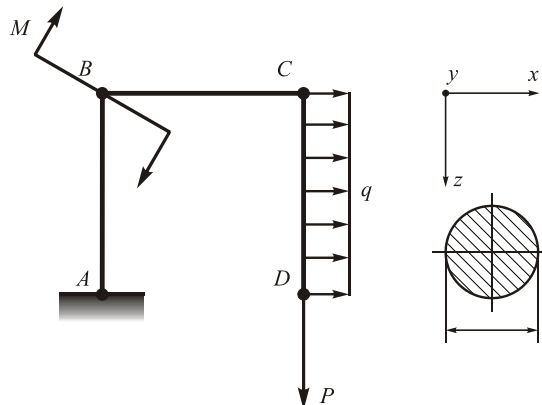
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 6 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

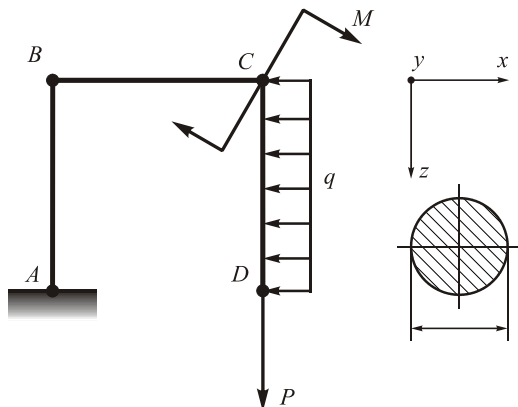
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 7 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

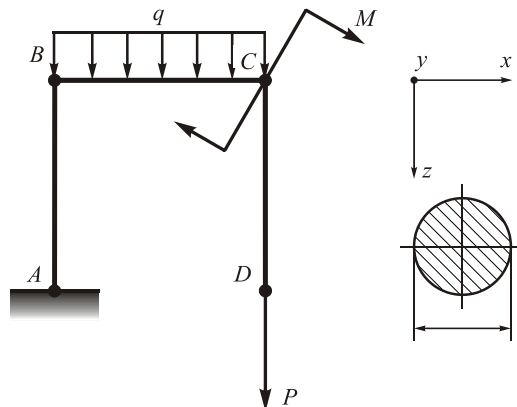
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 8 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

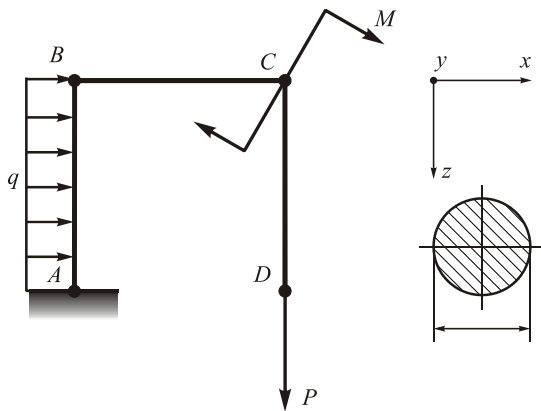
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 9 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

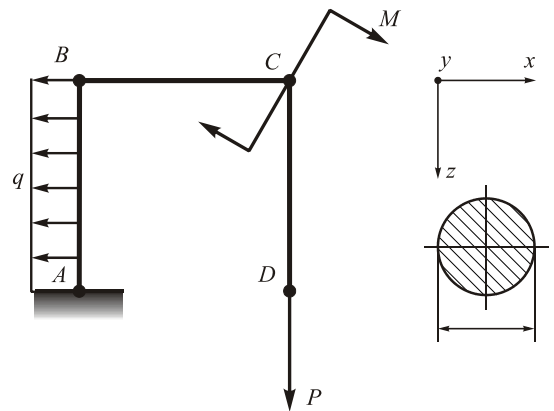
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 10 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

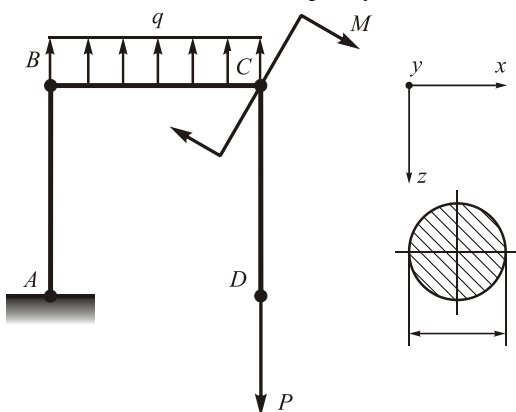
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 11 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

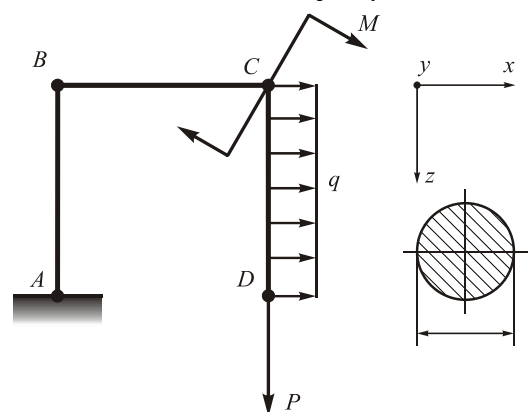
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 12 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

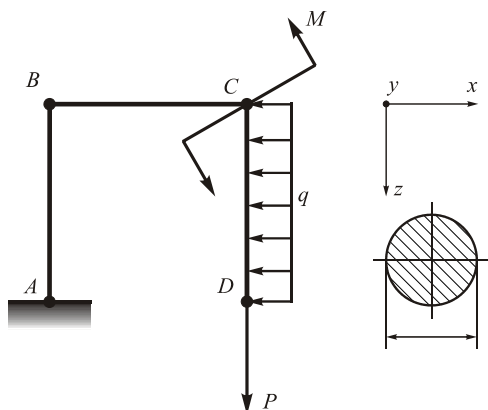
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 13 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

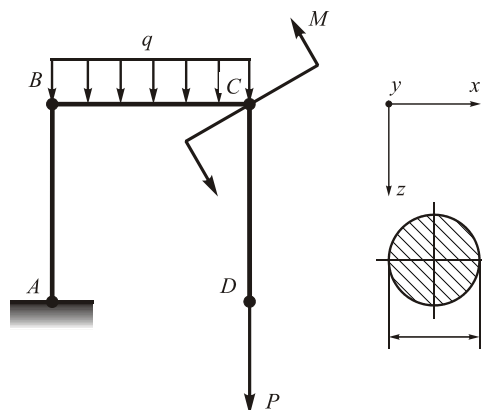
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 14 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

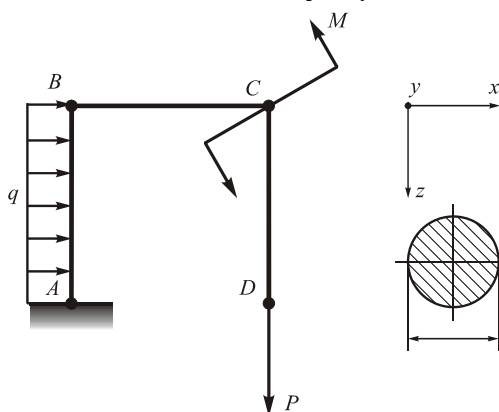
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 15 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

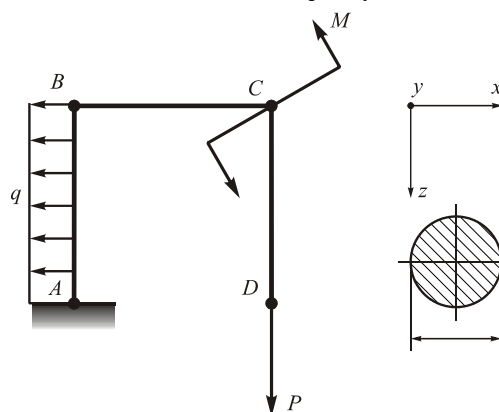
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 16 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

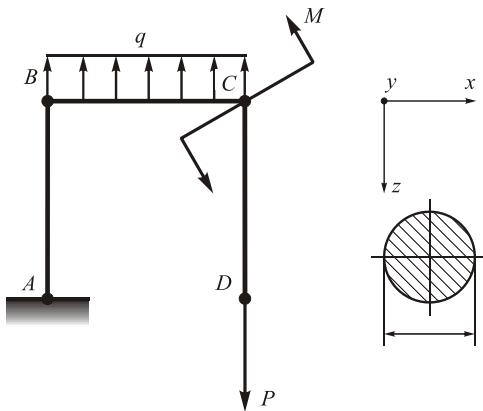
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 17 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

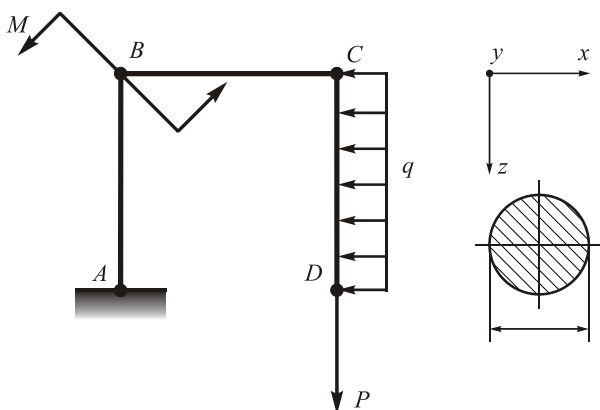
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 19 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

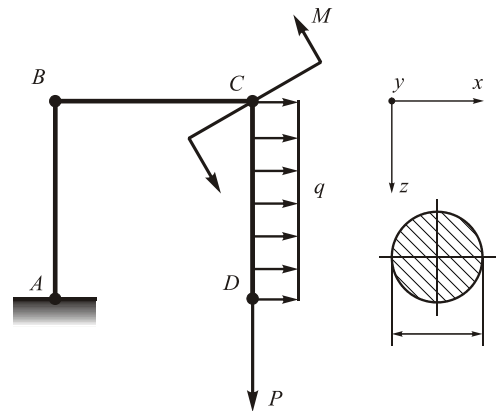
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 18 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

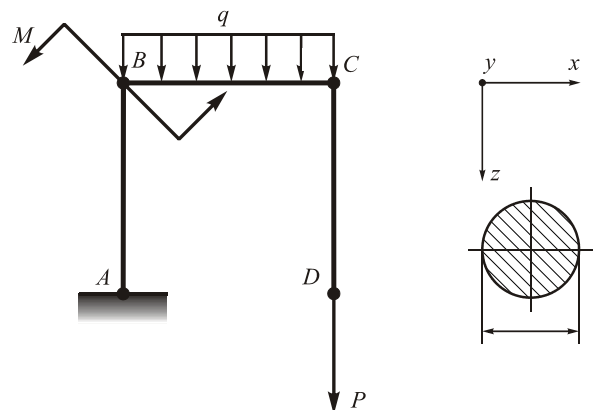
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 20 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

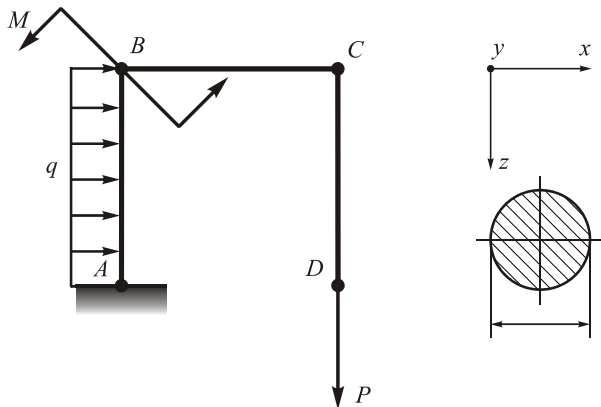
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 21 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

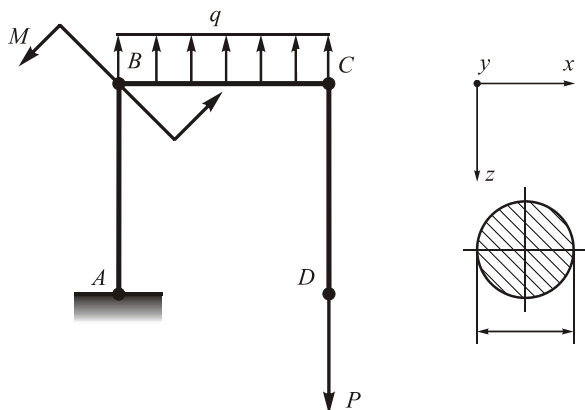
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 23 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

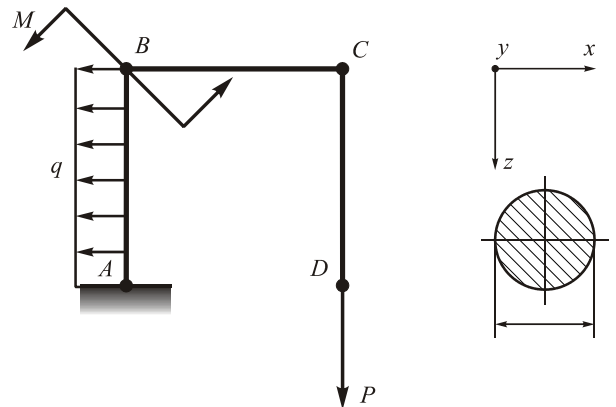
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 22 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

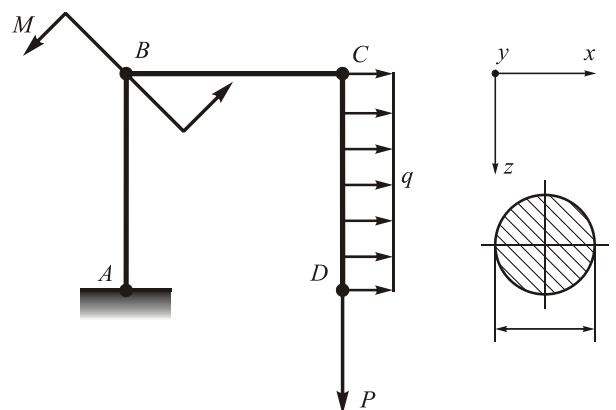
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 24 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

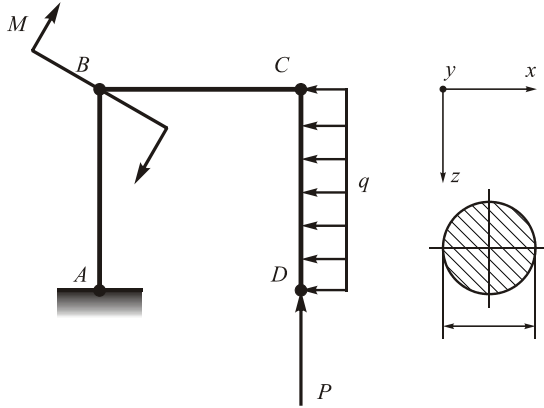
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 25 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

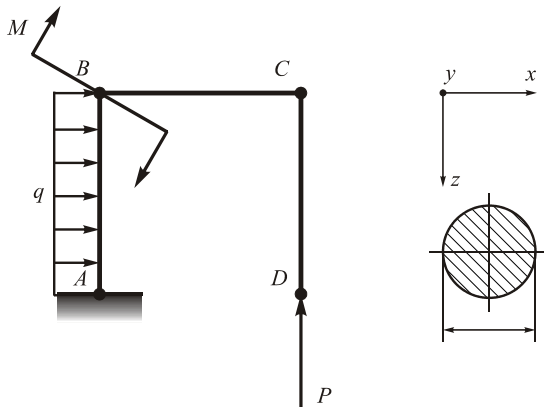
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 27 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

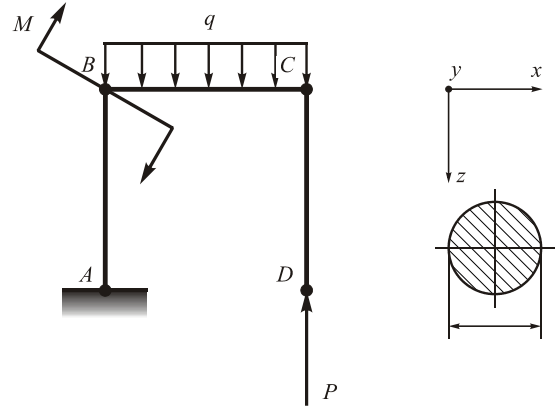
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 26 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

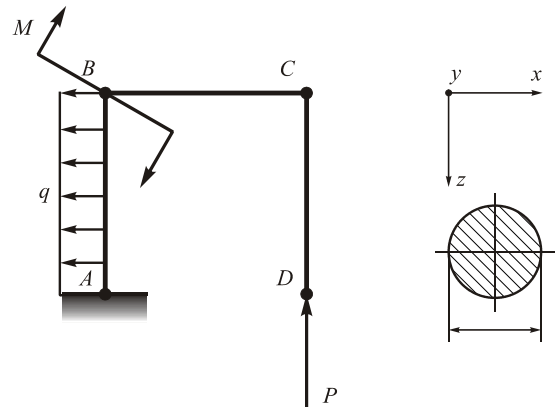
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 28 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

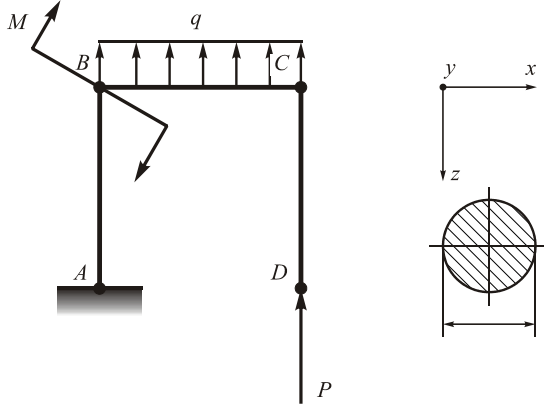
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 29 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

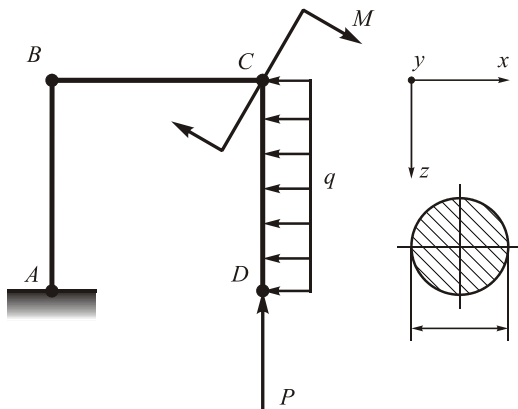
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 31 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

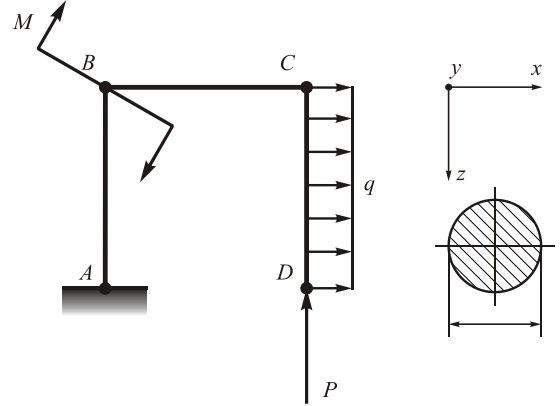
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 30 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

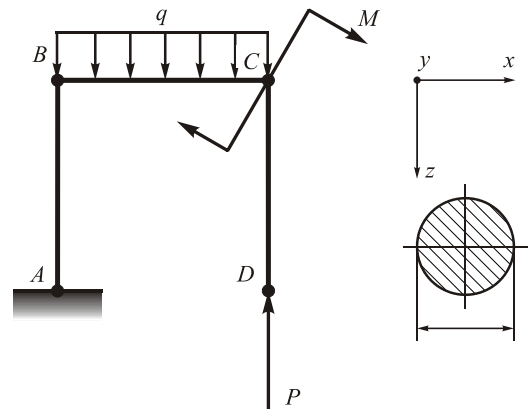
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 32 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

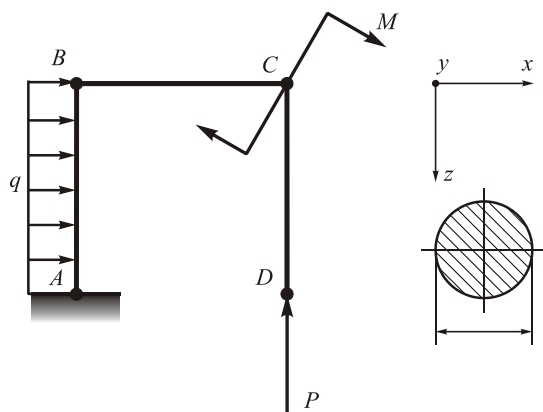
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 33 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

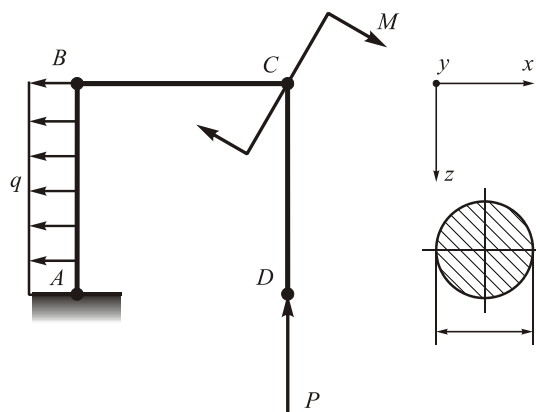
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 34 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

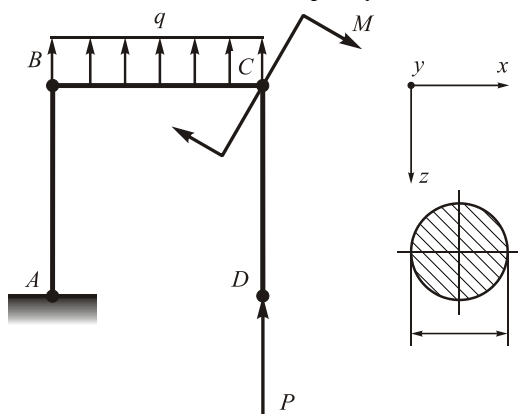
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 35 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

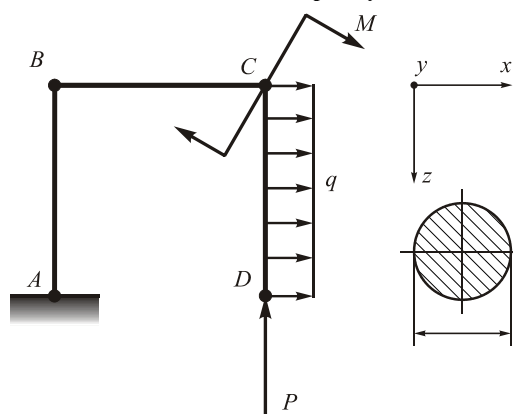
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 36 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

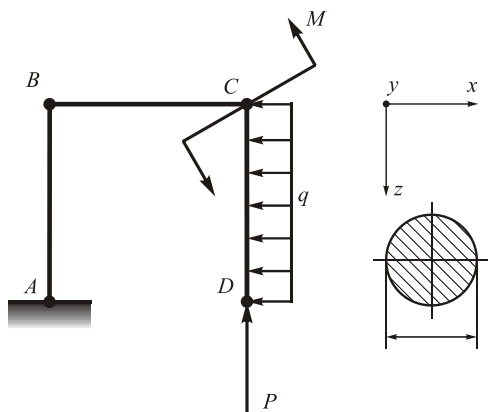
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 37 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

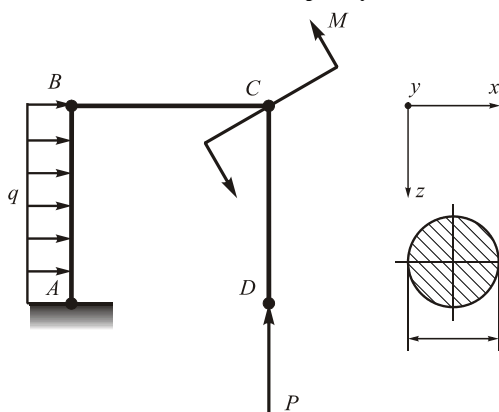
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 39 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

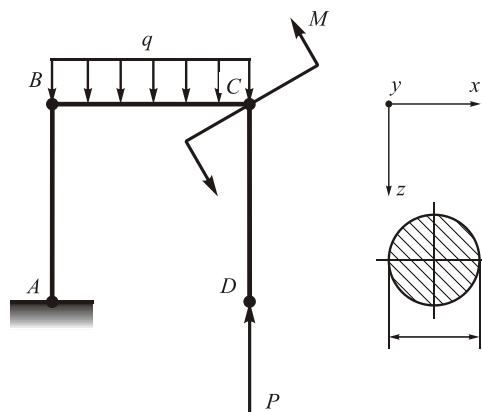
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 38 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

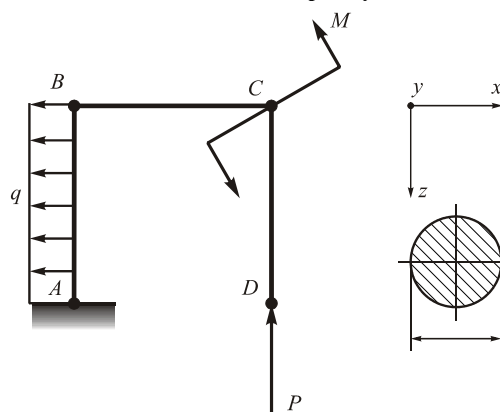
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 40 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

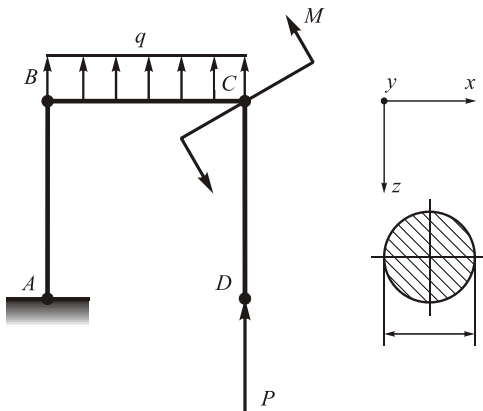
$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$	signature
$z_B - ?$	$z_C - ?$	$z_D - ?$	
$x_B - ?$	$x_C - ?$	$x_D - ?$	

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 41 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

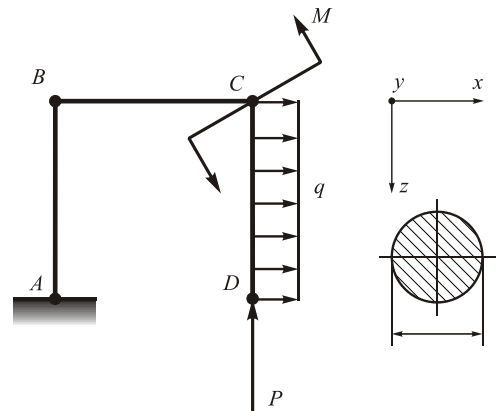
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 42 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

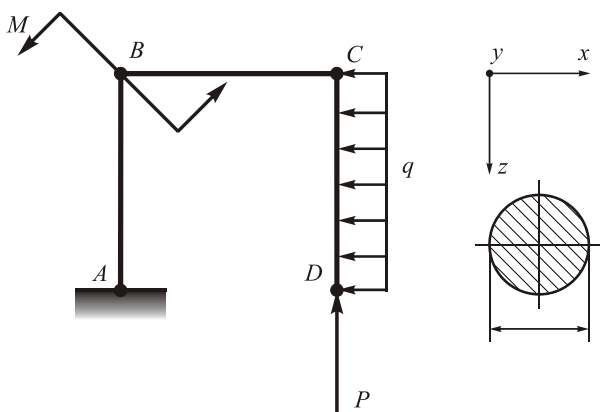
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 43 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

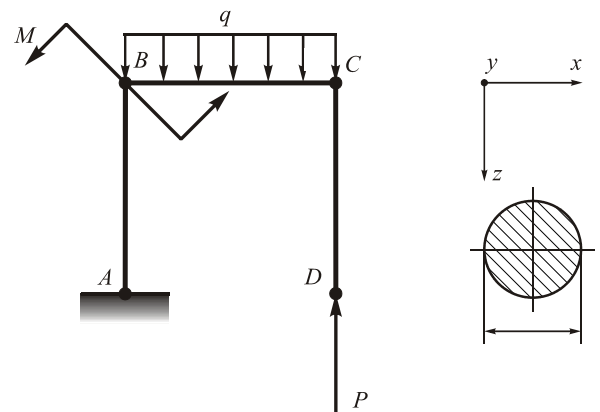
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 44 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

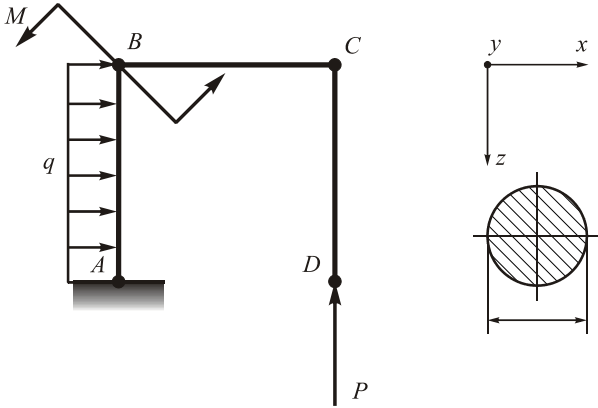
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 45 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

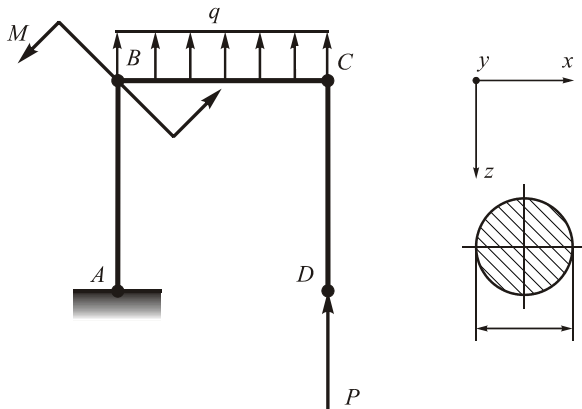
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 47 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

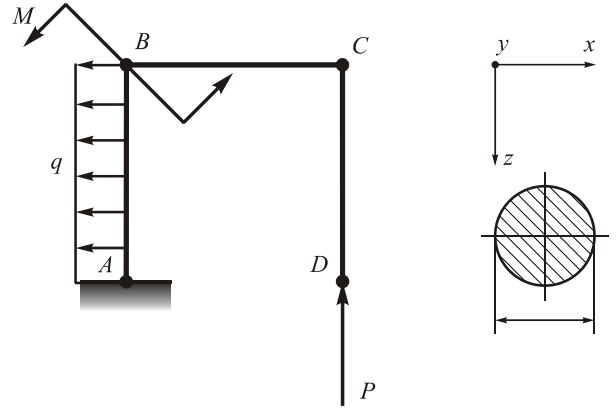
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 46 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

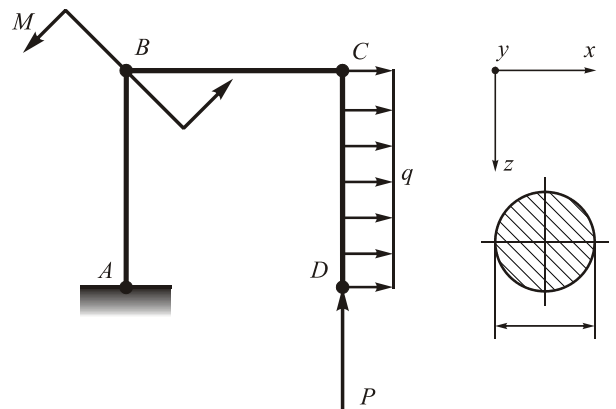
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 48 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

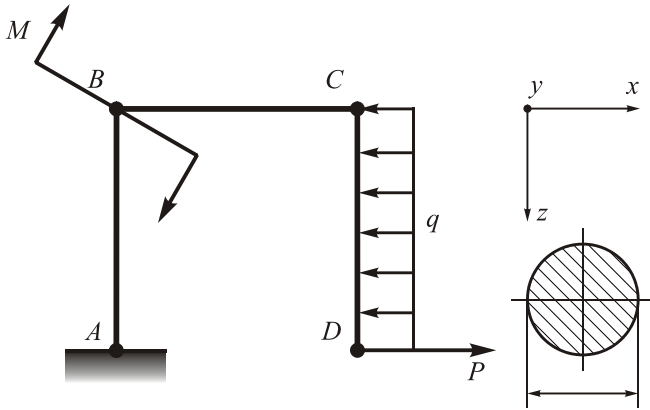
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 49 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

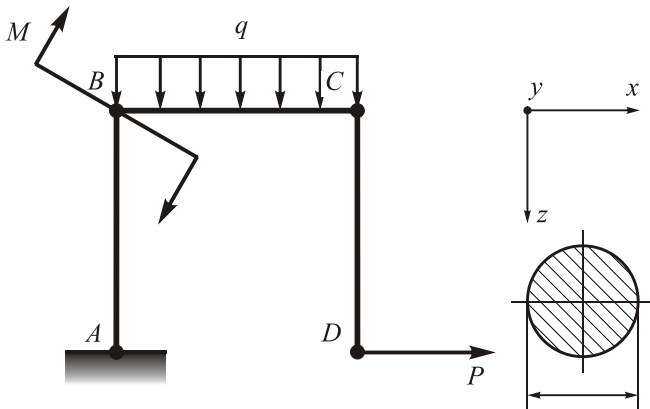
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 51 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

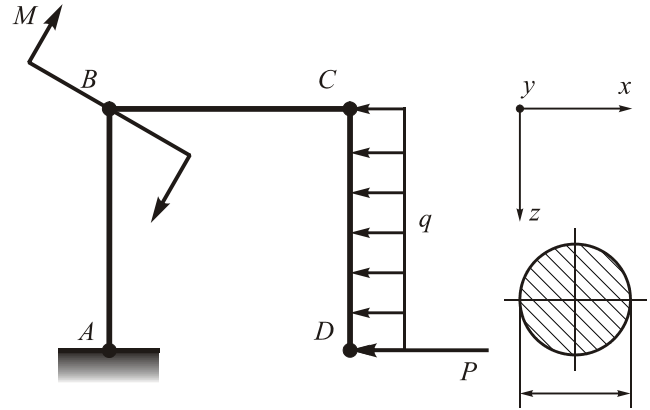
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 50 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

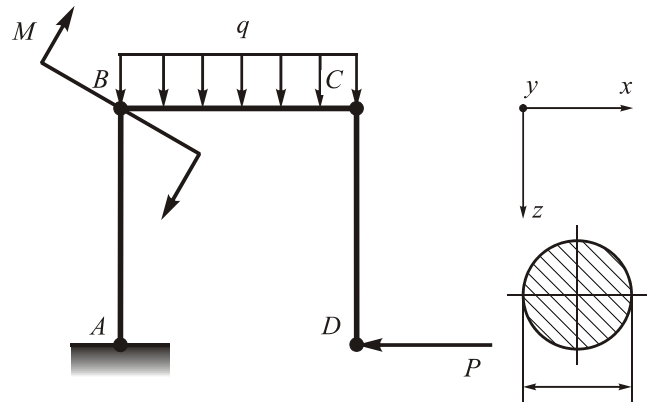
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 52 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

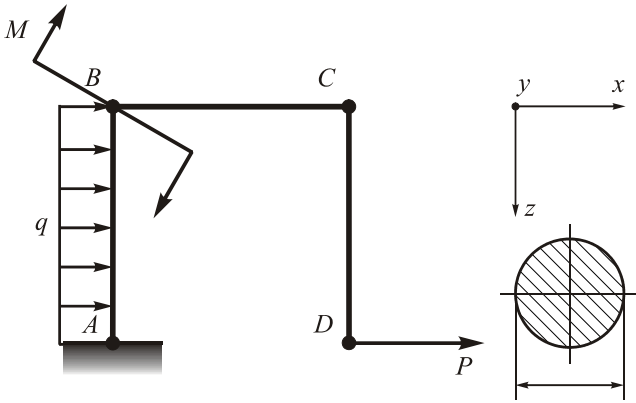
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 53 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

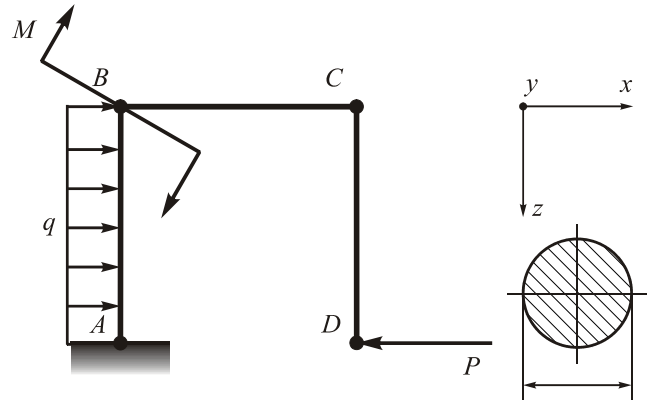
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 54 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

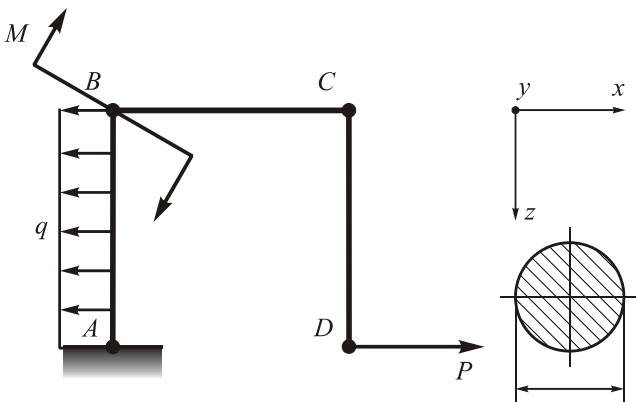
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 55 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

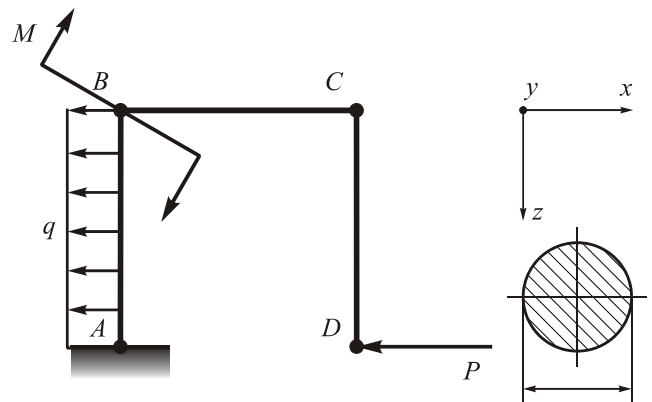
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 56 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

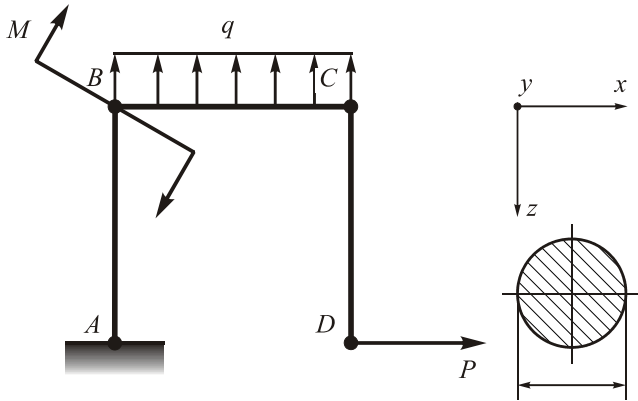
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 57 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

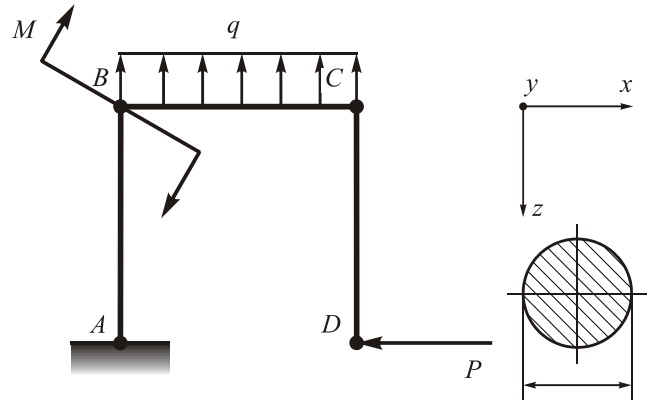
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 58 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

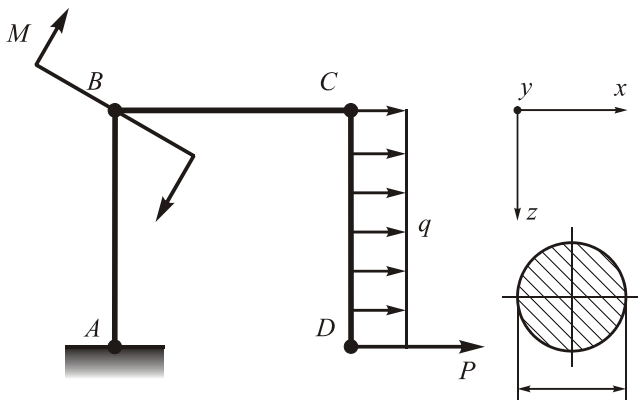
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 59 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

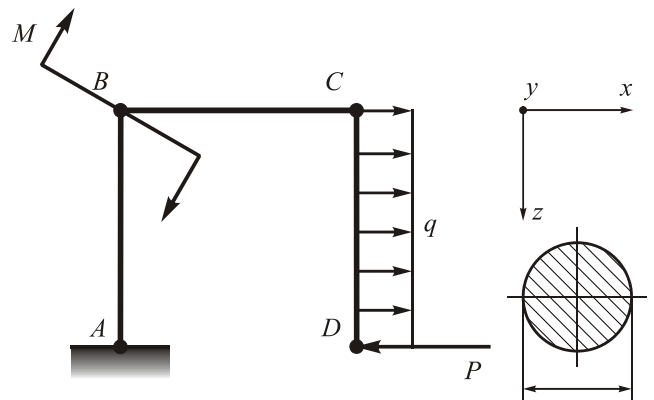
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 60 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

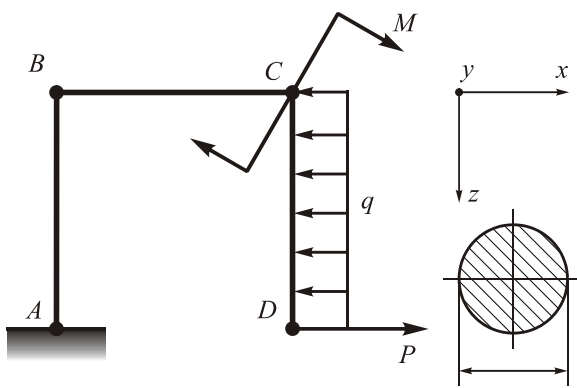
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 61

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

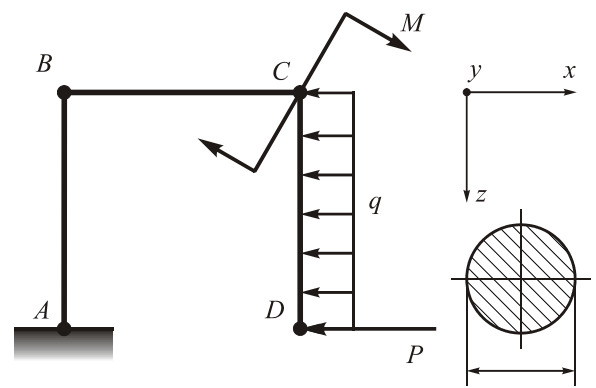
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 62

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

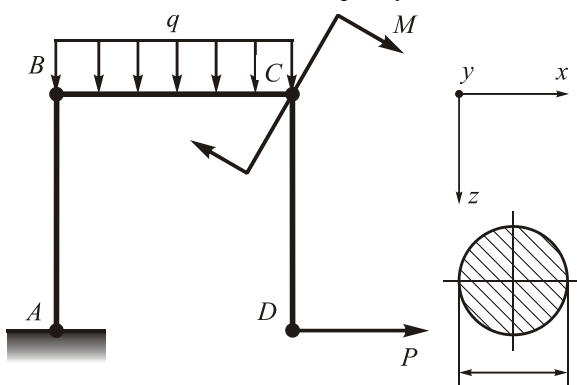
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 63

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

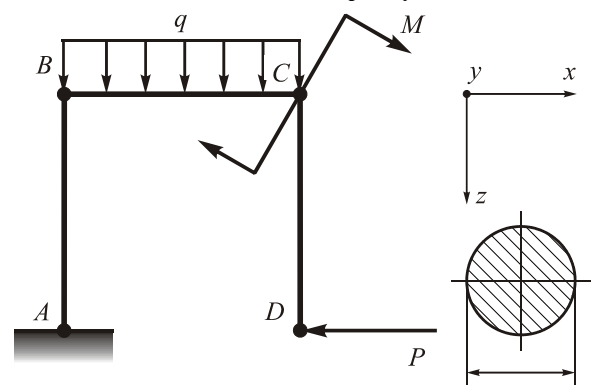
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 64

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

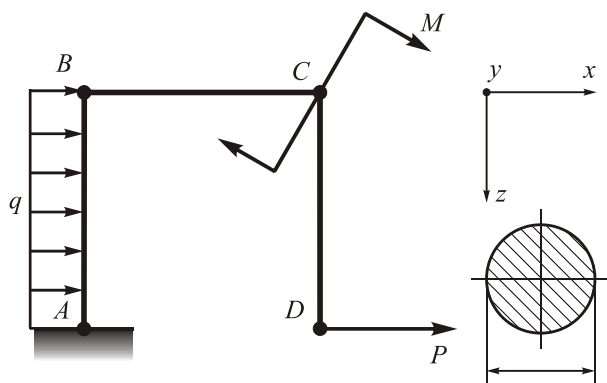
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 65

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;

$[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

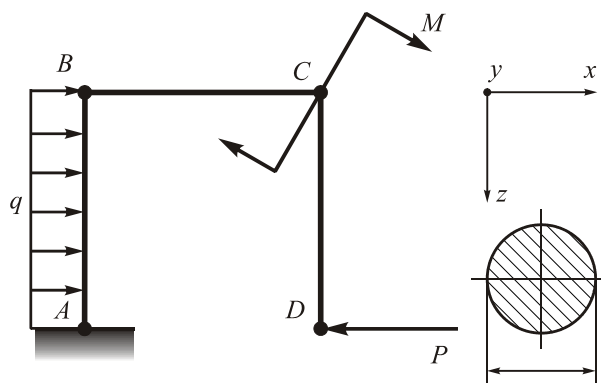
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 66

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;

$[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

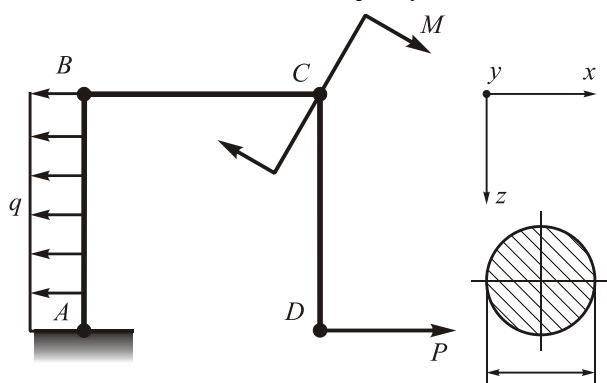
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 67

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;

$[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

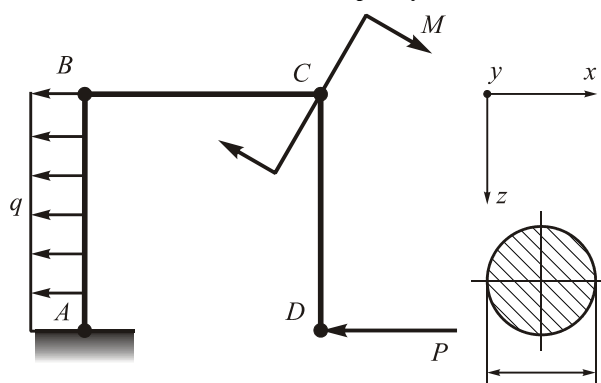
Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 68

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;

$[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

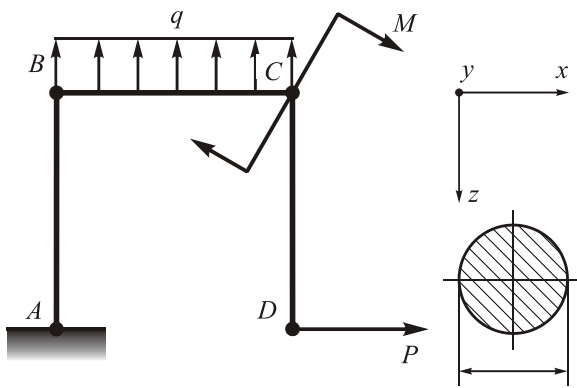
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 69 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

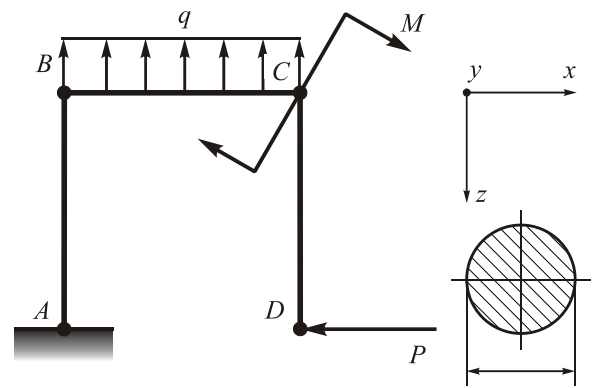
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 70 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

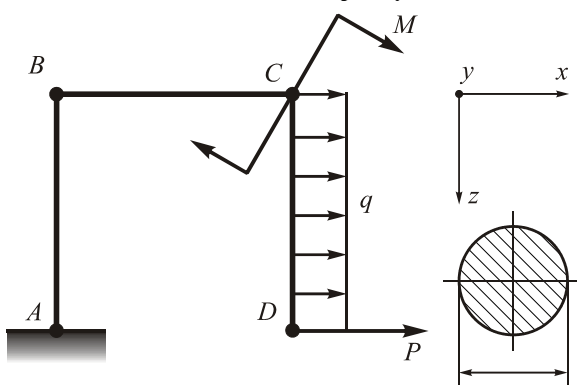
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 71 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

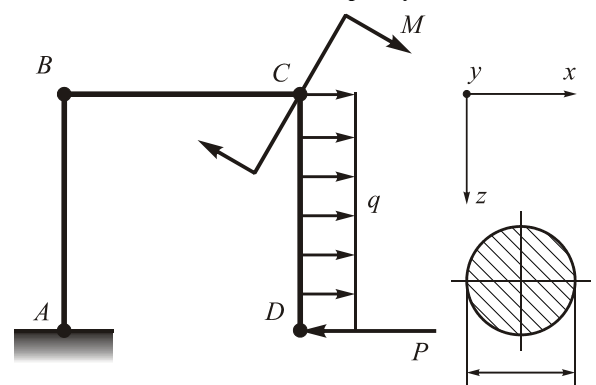
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 72 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

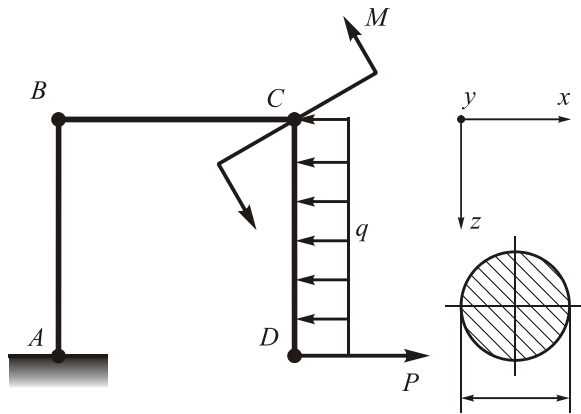
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 73 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

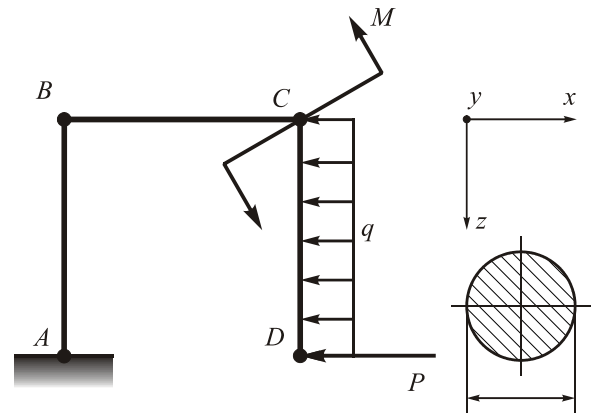
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 74 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

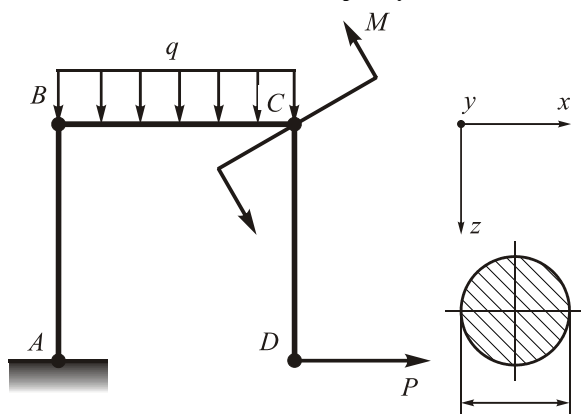
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 75 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

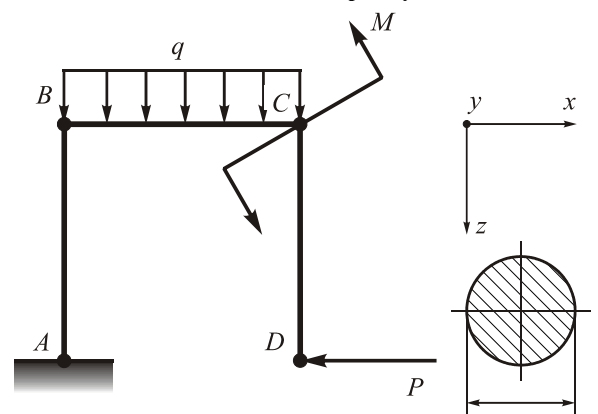
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 76 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

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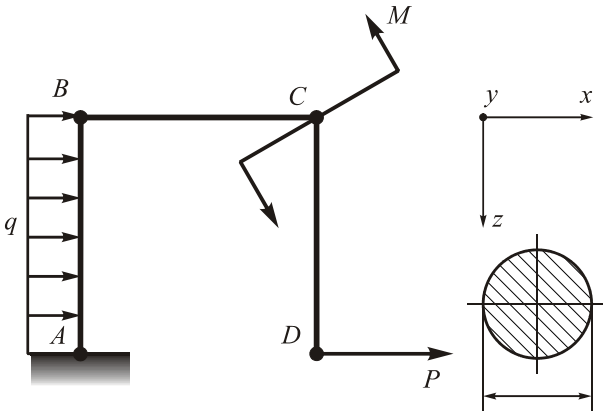
Full name of the lecturer

Mark:

Subject: mechanics of materials
Document: home problem
Topic: Generalized Displacements in Plane Frames in Plane Bending.
Full name of the student, group

Variant: 77

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

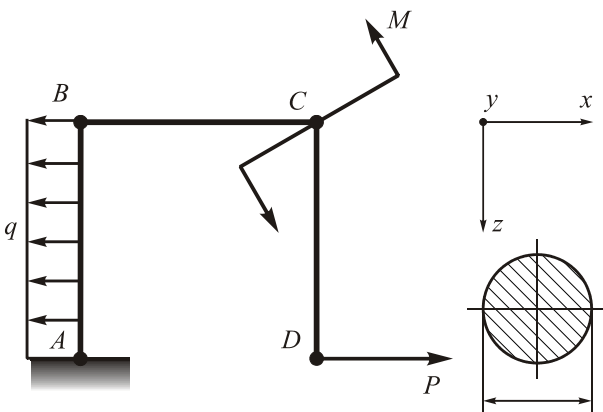
Full name of the lecturer

Mark:

Subject: mechanics of materials
Document: home problem
Topic: Generalized Displacements in Plane Frames in Plane Bending.
Full name of the student, group

Variant: 79

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

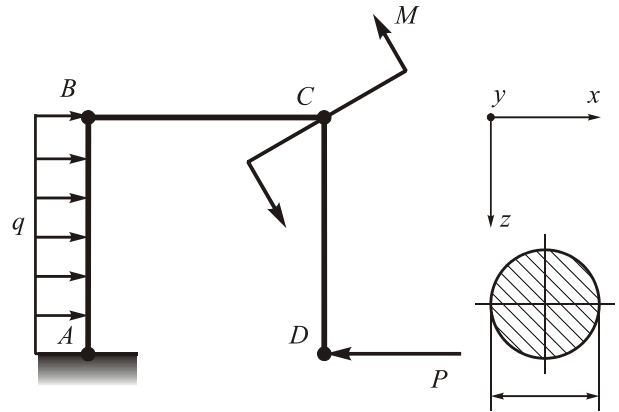
Full name of the lecturer

Mark:

Subject: mechanics of materials
Document: home problem
Topic: Generalized Displacements in Plane Frames in Plane Bending.
Full name of the student, group

Variant: 78

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

signature

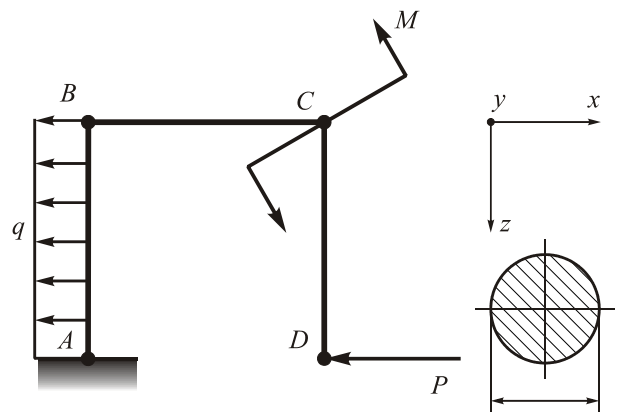
Full name of the lecturer

Mark:

Subject: mechanics of materials
Document: home problem
Topic: Generalized Displacements in Plane Frames in Plane Bending.
Full name of the student, group

Variant: 80

Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

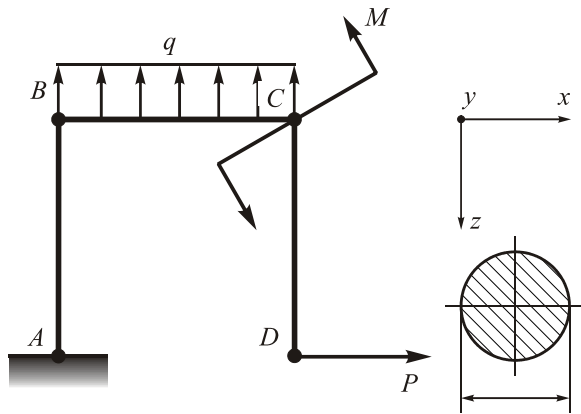
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 81 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

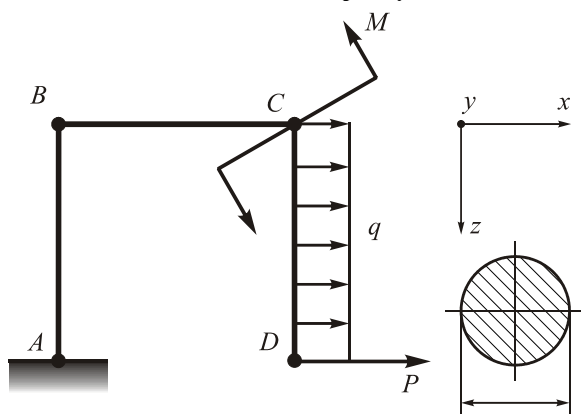
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 83 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

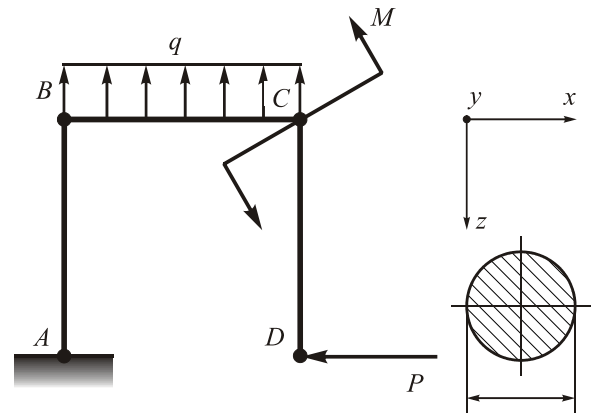
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 82 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

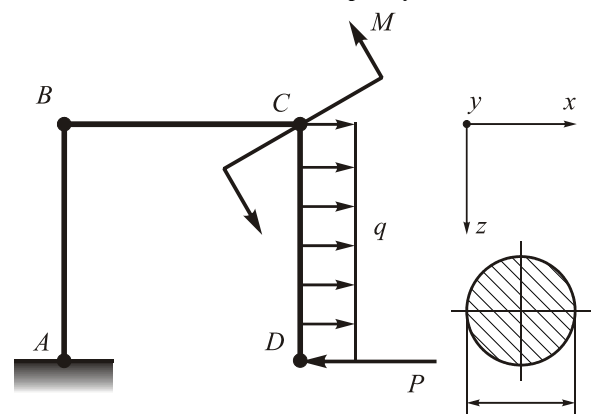
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 84 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

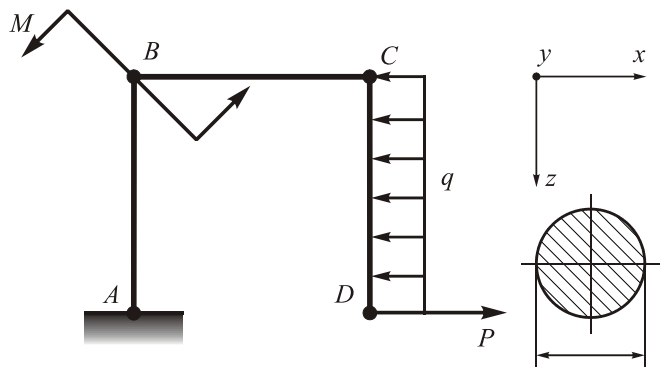
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 85 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

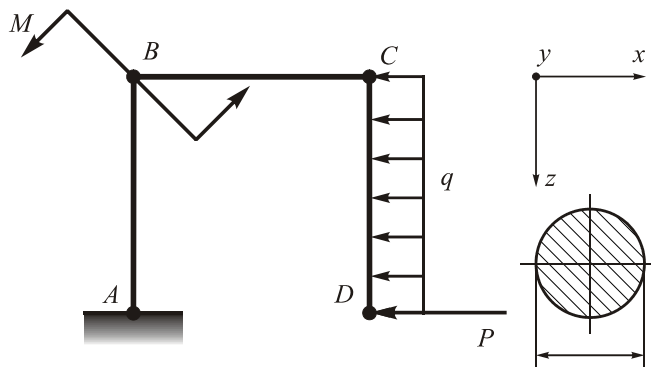
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 86 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

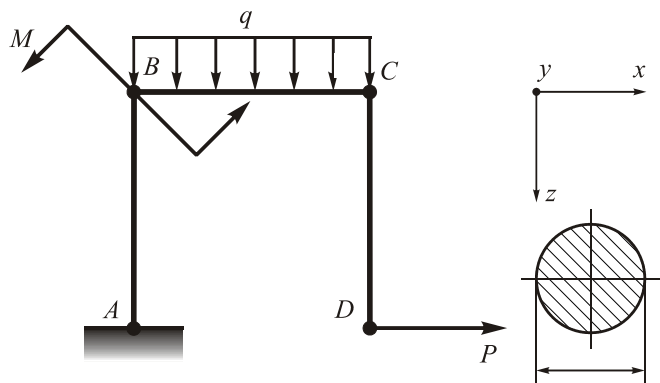
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 87 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

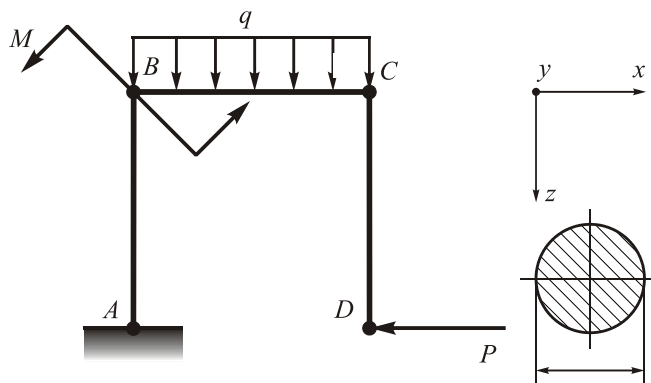
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 88 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

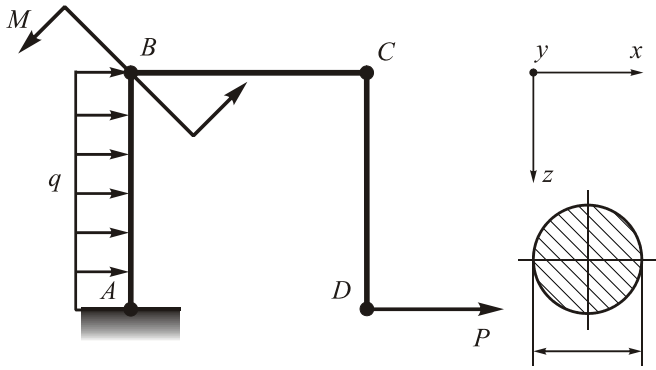
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 89 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

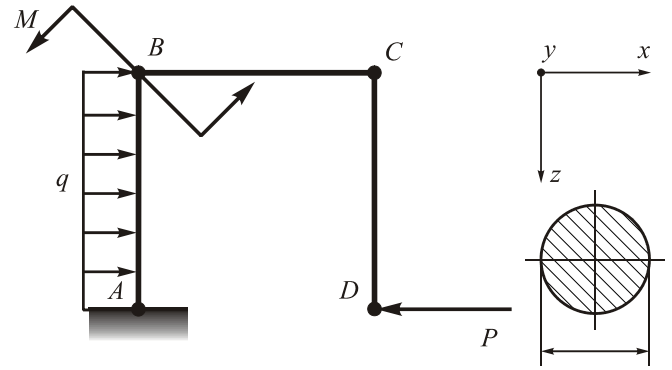
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 90 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

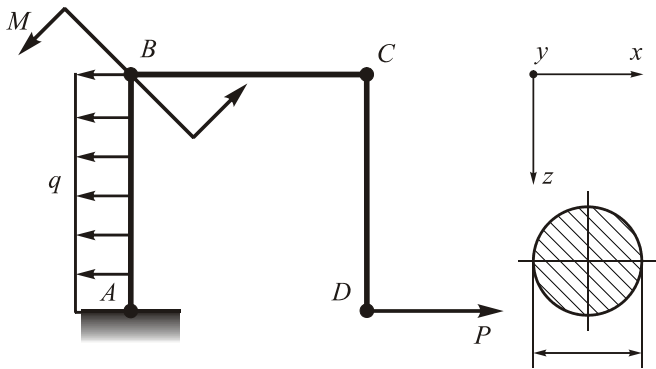
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 91 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

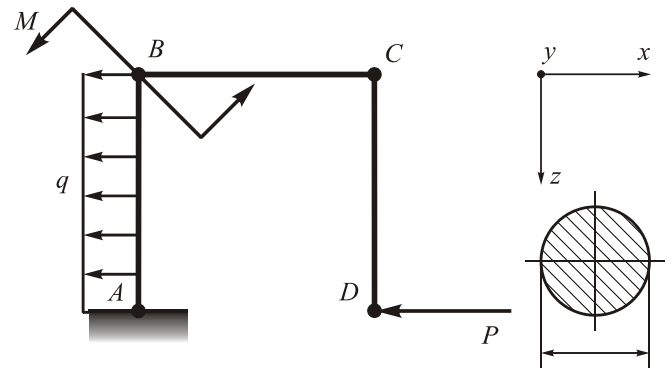
signature

Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 92 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$);
 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

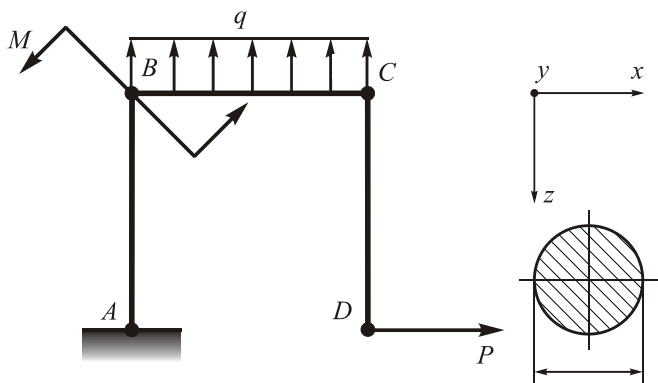
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Full name of the lecturer

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 93 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

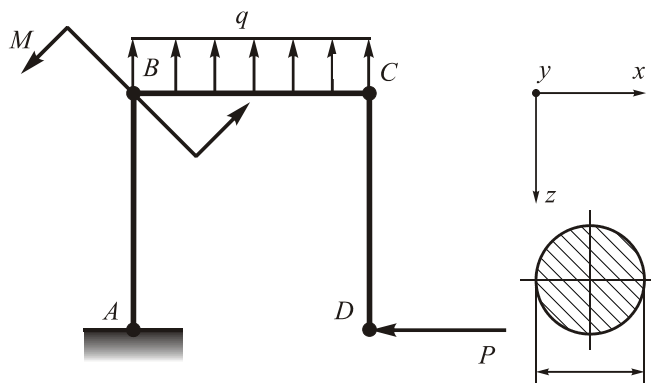
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 94 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

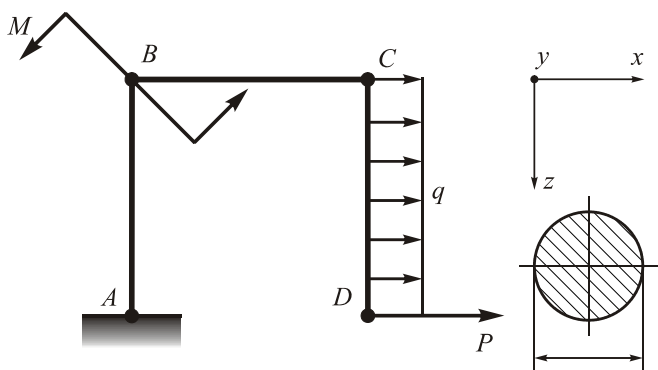
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 95 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

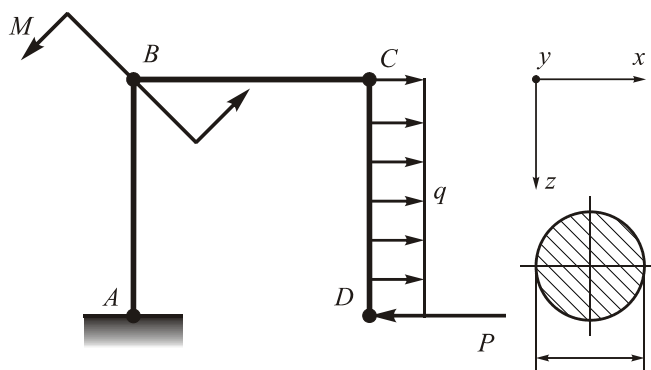
Full name of the lecturer

signature

Mark:

Subject: mechanics of materials
 Document: home problem
 Topic: Generalized Displacements in Plane Frames in Plane Bending.
 Full name of the student, group

Variant: 96 Complexity: 3



Given: $q = 10 \text{ kN/m}$; $P = 20 \text{ kN}$; $M = 10 \text{ kNm}$; $E = 2 \times 10^{11} \text{ Pa}$;
 $[\sigma] = 160 \text{ MPa}$; $a = 2 \text{ m}$.

Goal: 1) calculate dimensions of the cross-section choosing the one of following: a) diameter of the round solid; b) dimensions of the rectangle ($h/b=2$); 2) calculate vertical and horizontal displacements and the slopes in the following points:

$\theta_B - ?$	$\theta_C - ?$	$\theta_D - ?$
$z_B - ?$	$z_C - ?$	$z_D - ?$
$x_B - ?$	$x_C - ?$	$x_D - ?$

Full name of the lecturer

signature

Mark: