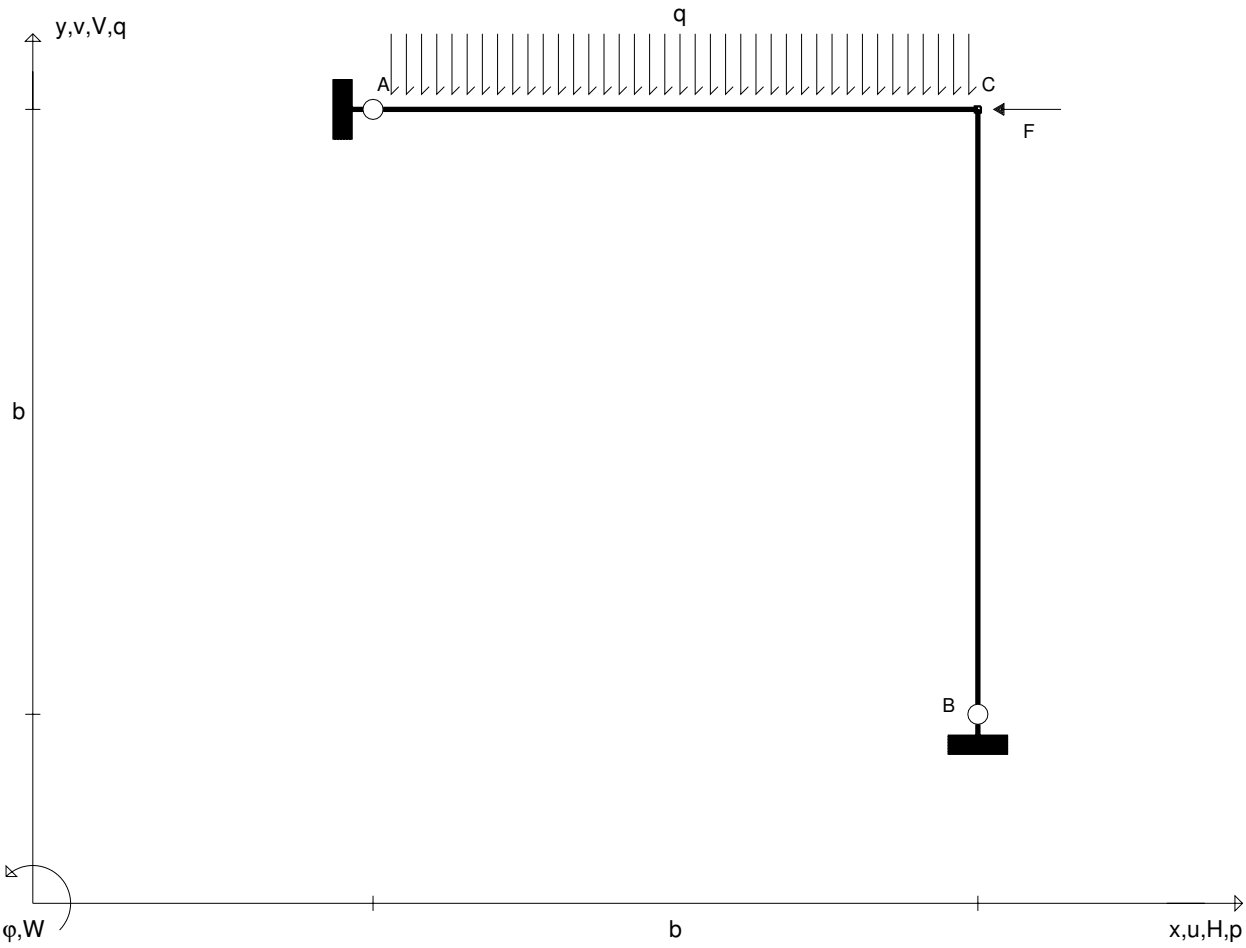
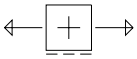
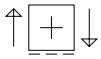
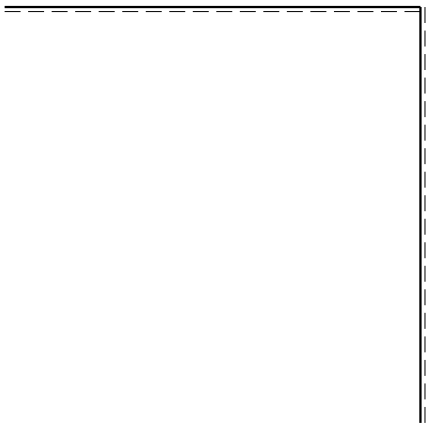


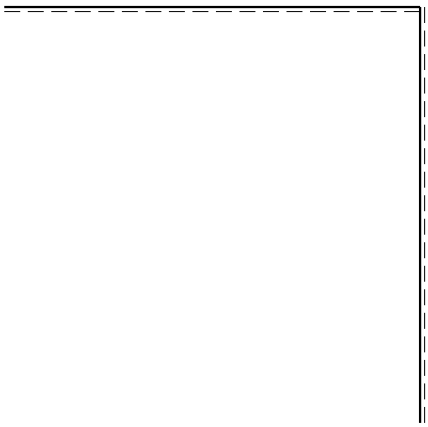
$H_C = -F$ $q_{AC} = -q = -F/b$ $EJ_{AC} = EJ$ $EJ_{BC} = EJ$

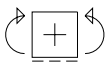
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

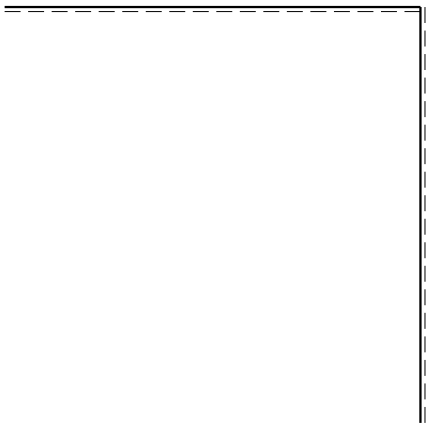


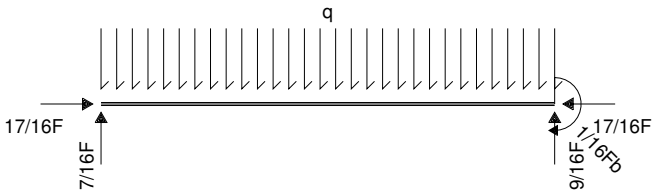


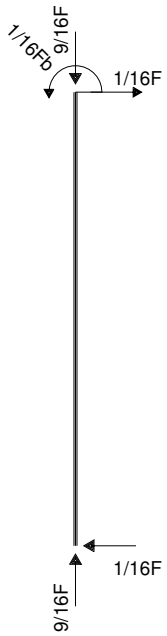




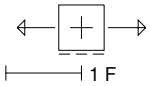


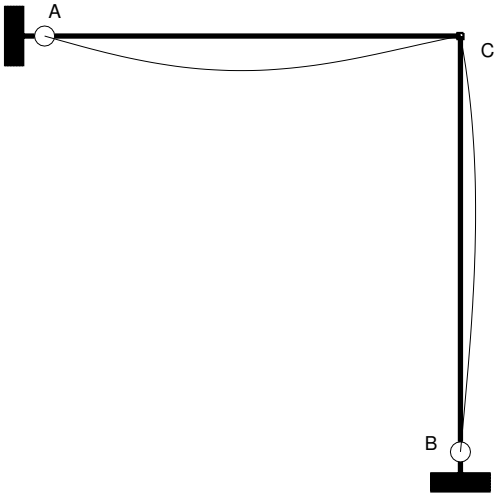


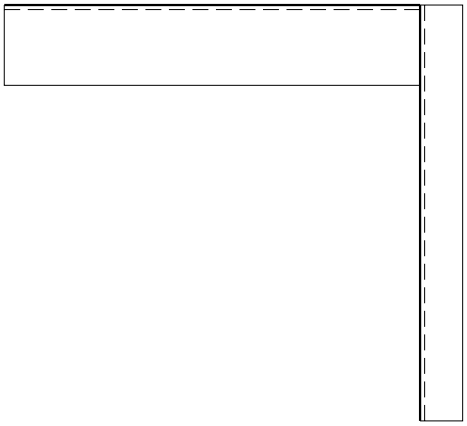

q
17/16F
7/16F
9/16F
1/16Fb
17/16F

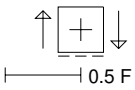

1/16Fb
9/16F
1/16F
1/16F
9/16F

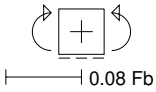
0.02 Fb^3/EJ

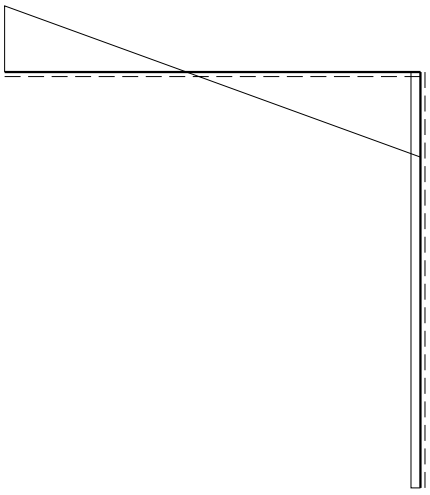


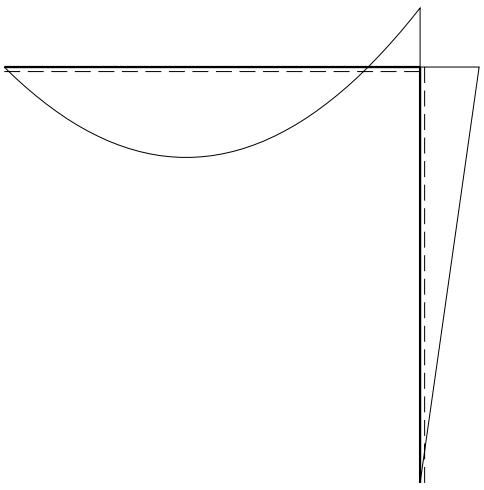












REAZIONI

$H_A = F + 1/16qb = 17/16F$
$V_A = 7/16qb = 7/16F$
$H_B = -1/16qb = -1/16F$
$V_B = 9/16qb = 9/16F$

$H_{AC} = F + 1/16qb = 17/16F$
$V_{AC} = 7/16qb = 7/16F$
$W_{AC} = 0$
$H_{CA} = -F - 1/16qb = -17/16F$
$V_{CA} = 9/16qb = 9/16F$
$W_{CA} = -1/16qb^2 = -1/16Fb$

$H_{BC} = -1/16qb = -1/16F$
$V_{BC} = 9/16qb = 9/16F$
$W_{BC} = 0$
$H_{CB} = 1/16qb = 1/16F$
$V_{CB} = -9/16qb = -9/16F$
$W_{CB} = 1/16qb^2 = 1/16Fb$

SPOSTAMENTI NODALI

$u_A = 0$
$v_A = 0$
$\varphi_{AAC} = -1/32(qb^3/EJ) = -1/32(Fb^2/EJ)$

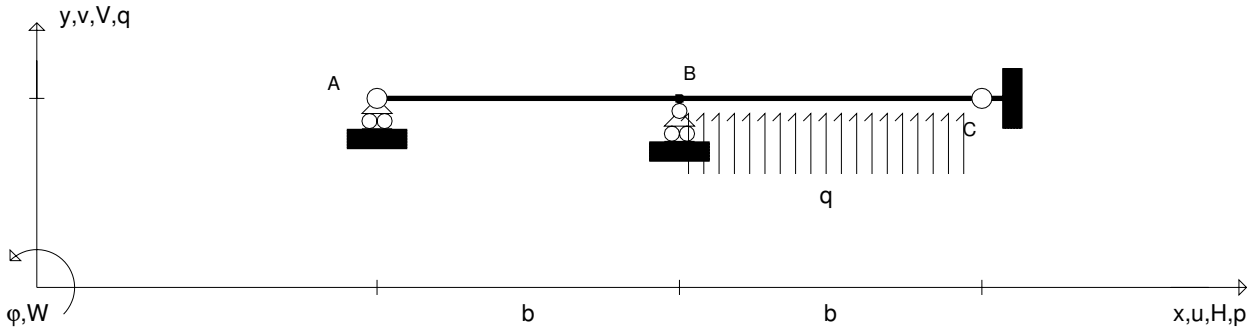
$u_B = 0$
$v_B = 0$
$\varphi_{BBC} = -1/96(qb^3/EJ) = -1/96(Fb^2/EJ)$

$u_C = 0$
$v_C = 0$
$\varphi_C = 1/48(qb^3/EJ) = 1/48(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

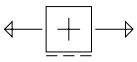
$N_{AC} = -17/16F$
$T_{AC} = 7/16F - qx$
$M_{AC} = 7/16Fx - 1/2qx^2$

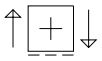
$N_{BC} = -9/16F$
$T_{BC} = 1/16F$
$M_{BC} = 1/16Fx$

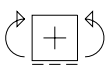


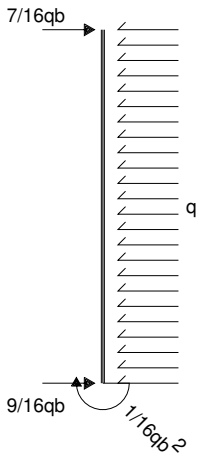
$q_{BC} = q$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

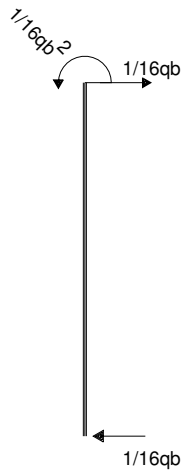
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

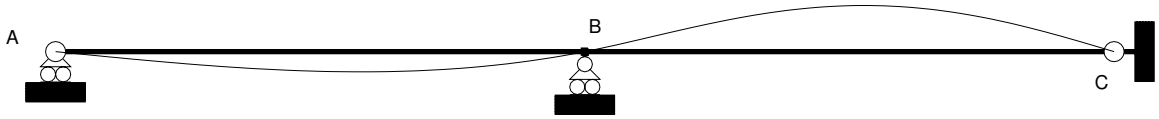




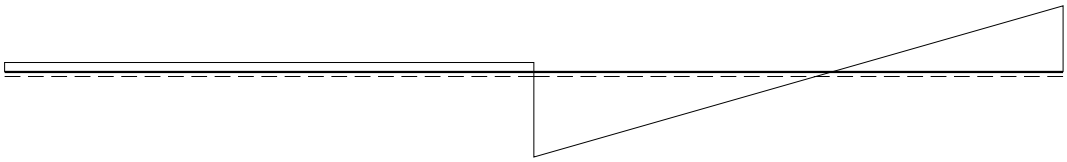


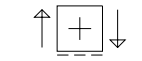

7/16qb
q
9/16qb
1/16qb 2

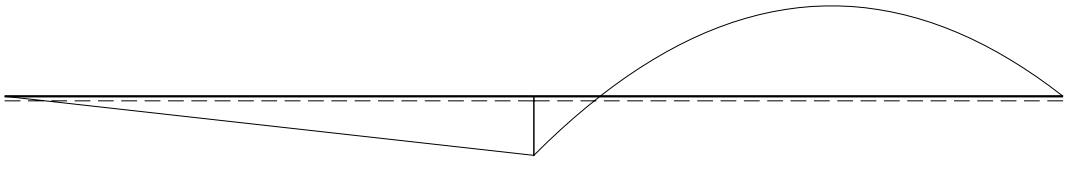

1/16qb 2
1/16qb
1/16qb

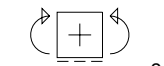



0.015 qb^4/EJ




0.5 qb




0.08 qb^2

REAZIONI

$V_A = 1/16qb$
$V_B = -5/8qb$
$H_C = 0$
$V_C = -7/16qb$

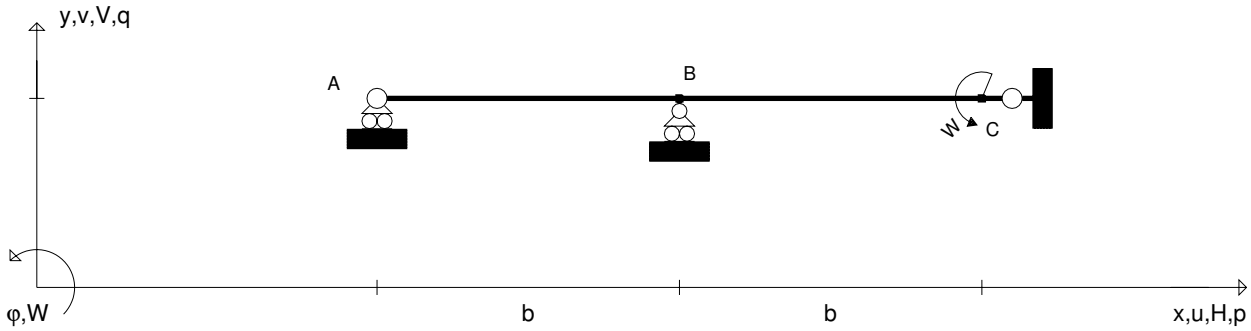
$H_{AB} = 0$	$H_{BC} = 0$
$V_{AB} = 1/16qb$	$V_{BC} = -9/16qb$
$W_{AB} = 0$	$W_{BC} = -1/16qb^2$
$H_{BA} = 0$	$H_{CB} = 0$
$V_{BA} = -1/16qb$	$V_{CB} = -7/16qb$
$W_{BA} = 1/16qb^2$	$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_{AAB} = 0$	$u_B = 0$	$u_C = 0$
$v_A = 0$	$v_B = 0$	$v_C = 0$
$\varphi_{AAB} = -1/96(qb^3/EJ)$	$\varphi_B = 1/48(qb^3/EJ)$	$\varphi_{CCB} = -1/32(qb^3/EJ)$

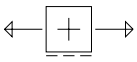
AZIONI INTERNE (coordinate locali)

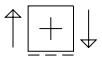
$N_{AB} = 0$	$N_{BC} = 0$
$T_{AB} = 1/16qb$	$T_{BC} = -9/16qb + qx$
$M_{AB} = 1/16qbx$	$M_{BC} = 1/16qb^2 - 9/16qbx + 1/2qx^2$

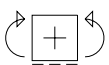


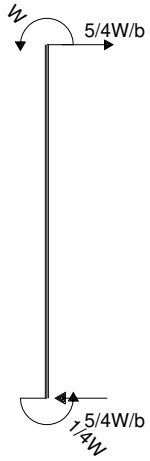
$W_C = W = Fb$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

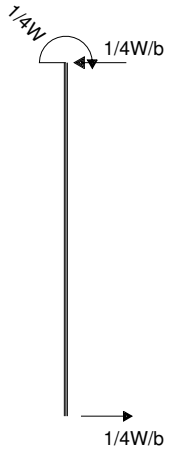
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

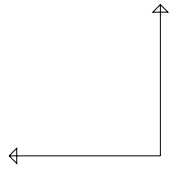


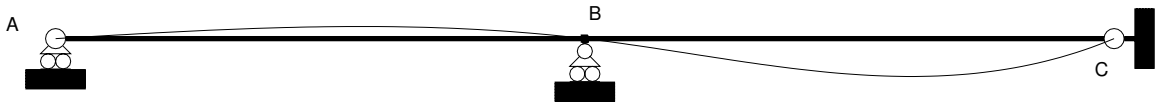




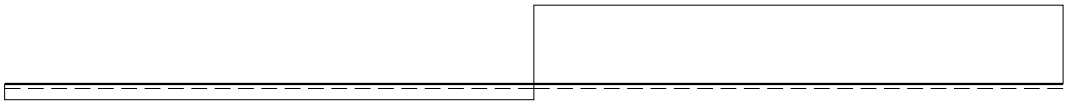

W
5/4W/b
5/4W/b
1/4W

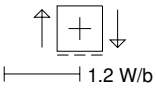

1/4W
1/4W/b
1/4W/b

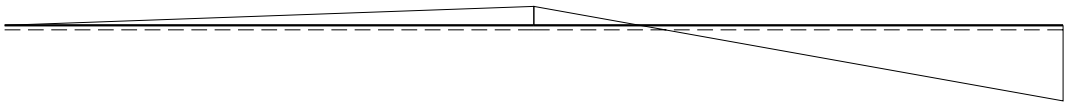


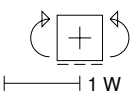



0.1 Wb^2/EJ









REAZIONI

$V_A = -1/4(W/b)$
$V_B = 3/2(W/b)$
$H_C = 0$
$V_C = -5/4(W/b)$

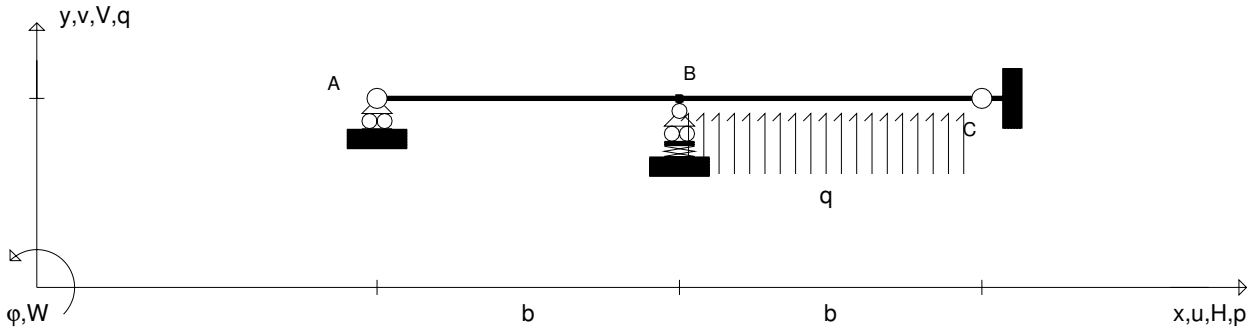
$H_{AB} = 0$	$H_{BC} = 0$
$V_{AB} = -1/4(W/b)$	$V_{BC} = 5/4(W/b)$
$W_{AB} = 0$	$W_{BC} = 1/4W$
$H_{BA} = 0$	$H_{CB} = 0$
$V_{BA} = 1/4(W/b)$	$V_{CB} = -5/4(W/b)$
$W_{BA} = -1/4W$	$W_{CB} = W$

SPOSTAMENTI NODALI

$u_{AAB} = 0$	$u_B = 0$	$u_C = 0$
$v_A = 0$	$v_B = 0$	$v_C = 0$
$\varphi_{AAB} = 1/24(Wb/EJ)$	$\varphi_B = -1/12(Wb/EJ)$	$\varphi_{CCB} = 7/24(Wb/EJ)$

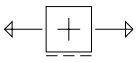
AZIONI INTERNE (coordinate locali)

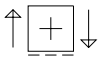
$N_{AB} = 0$	$N_{BC} = 0$
$T_{AB} = -1/4(W/b)$	$T_{BC} = 5/4(W/b)$
$M_{AB} = -1/4(W/b)x$	$M_{BC} = -1/4W + 5/4(W/b)x$

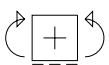


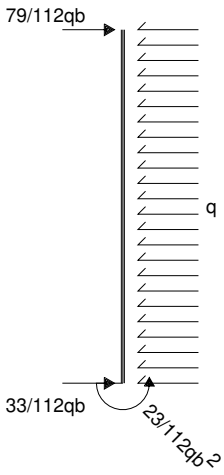
$q_{BC} = q$ $k_B = EJ/b^3$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

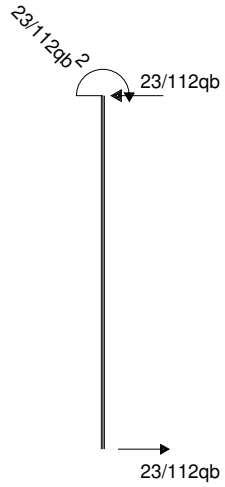
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

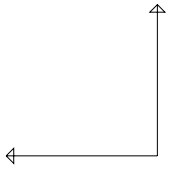


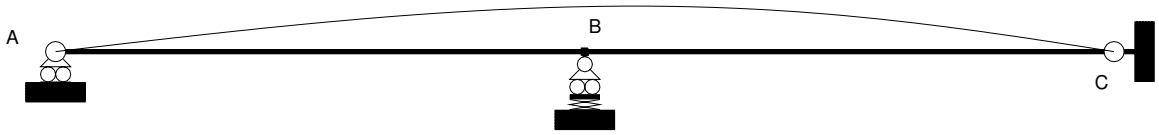




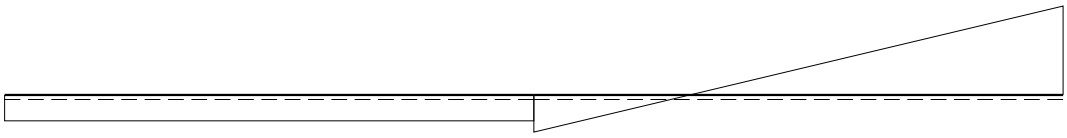

79/112qb
q
33/112qb
23/112qb 2

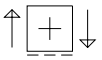

23/112qb 2
23/112qb
23/112qb

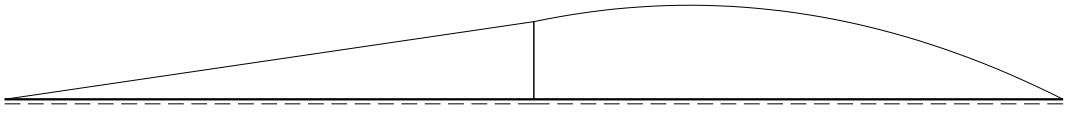


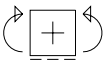



0.15 qb^4/EJ




0.6 qb




0.2 qb^2

REAZIONI

$V_A = -23/112qb$
$V_B = -5/56qb$
$H_C = 0$
$V_C = -79/112qb$

$H_{AB} = 0$
$V_{AB} = -23/112qb$
$W_{AB} = 0$
$H_{BA} = 0$
$V_{BA} = 23/112qb$
$W_{BA} = -23/112qb^2$

$H_{BC} = 0$
$V_{BC} = -33/112qb$
$W_{BC} = 23/112qb^2$
$H_{CB} = 0$
$V_{CB} = -79/112qb$
$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_{AAB} = 0$
$v_A = 0$
$\varphi_{AAB} = 83/672(qb^3/EJ)$

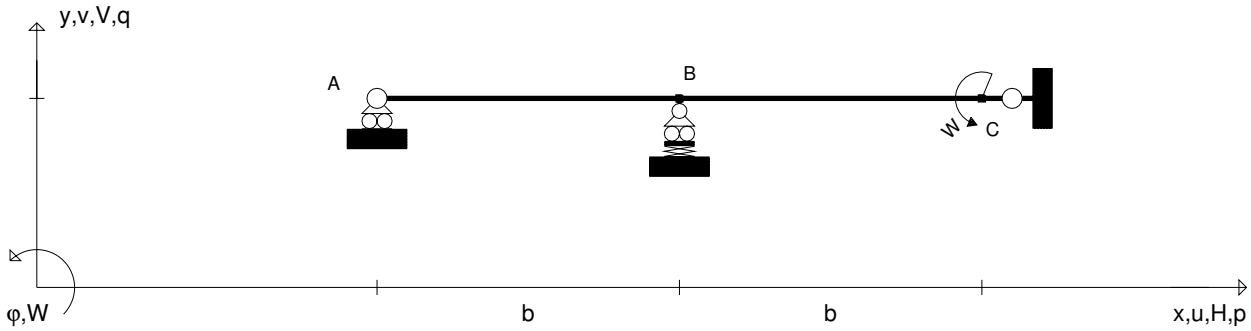
$u_B = 0$
$v_B = 5/56(qb^4/EJ)$
$\varphi_B = 1/48(qb^3/EJ)$

$u_C = 0$
$v_C = 0$
$\varphi_{CCB} = -37/224(qb^3/EJ)$

AZIONI INTERNE (coordinate locali)

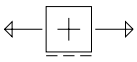
$N_{AB} = 0$
$T_{AB} = -23/112qb$
$M_{AB} = -23/112qbx$

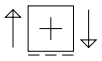
$N_{BC} = 0$
$T_{BC} = -33/112qb +qx$
$M_{BC} = -23/112qb^2 -33/112qbx +1/2qx^2$

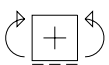


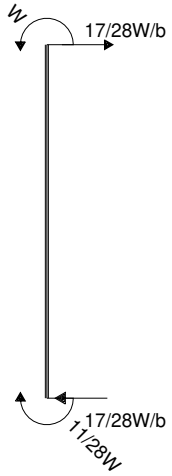
$W_C = W = Fb$ $k_B = EJ/b^3$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

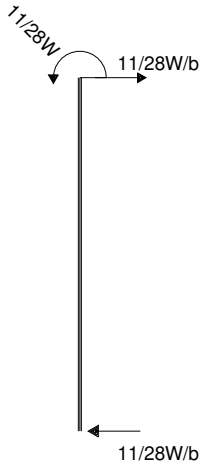
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

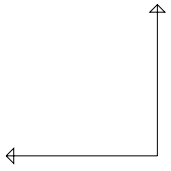


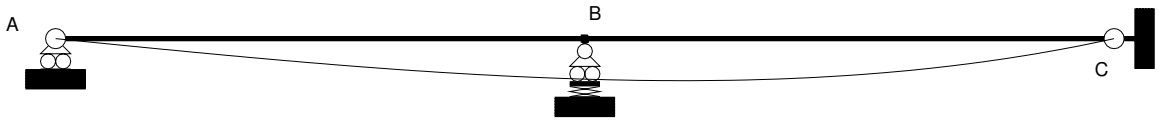




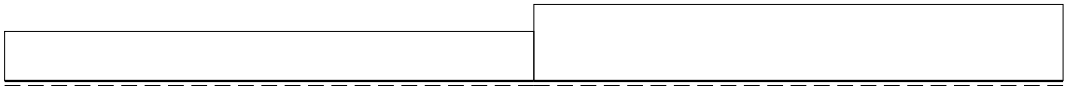

W
17/28W/b
17/28W/b
11/28W

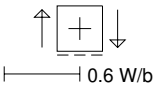

11/28W
11/28W/b
11/28W/b

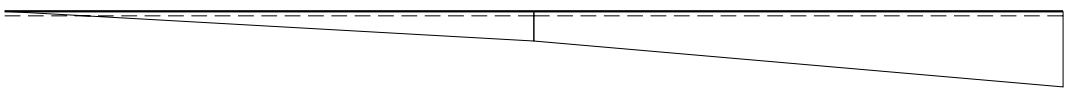


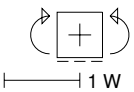



0.4 Wb^2/EJ









REAZIONI

$V_A = 11/28(W/b)$
$V_B = 3/14(W/b)$
$H_C = 0$
$V_C = -17/28(W/b)$

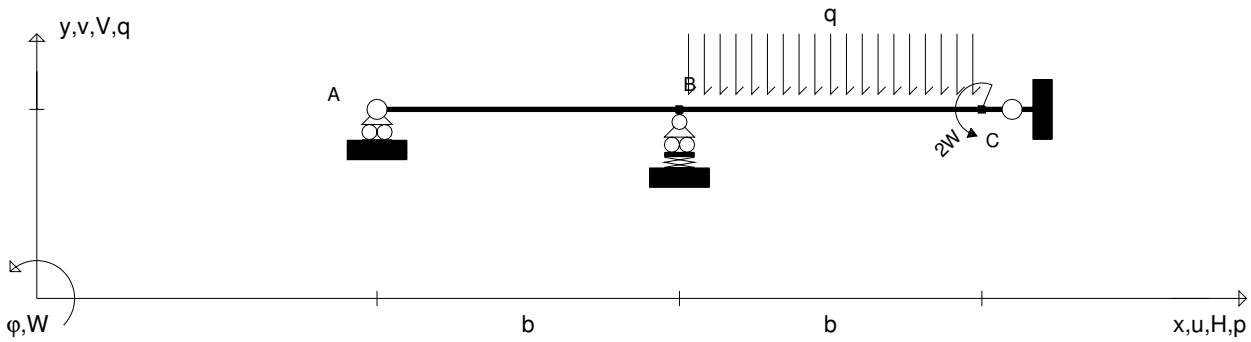
$H_{AB} = 0$	$H_{BC} = 0$
$V_{AB} = 11/28(W/b)$	$V_{BC} = 17/28(W/b)$
$W_{AB} = 0$	$W_{BC} = -11/28W$
$H_{BA} = 0$	$H_{CB} = 0$
$V_{BA} = -11/28(W/b)$	$V_{CB} = -17/28(W/b)$
$W_{BA} = 11/28W$	$W_{CB} = W$

SPOSTAMENTI NODALI

$u_{AAB} = 0$	$u_B = 0$	$u_C = 0$
$v_A = 0$	$v_B = -3/14(Wb^2/EJ)$	$v_C = 0$
$\varphi_{AAB} = -47/168(Wb/EJ)$	$\varphi_B = -1/12(Wb/EJ)$	$\varphi_{CCB} = 103/168(Wb/EJ)$

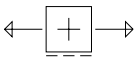
AZIONI INTERNE (coordinate locali)

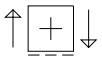
$N_{AB} = 0$	$N_{BC} = 0$
$T_{AB} = 11/28(W/b)$	$T_{BC} = 17/28(W/b)$
$M_{AB} = 11/28(W/b)x$	$M_{BC} = 11/28W + 17/28(W/b)x$

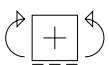


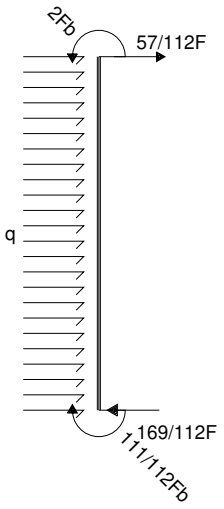
$W_C = 2W = 2Fb$ $q_{BC} = -q = -F/b$ $k_B = EJ/b^3$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

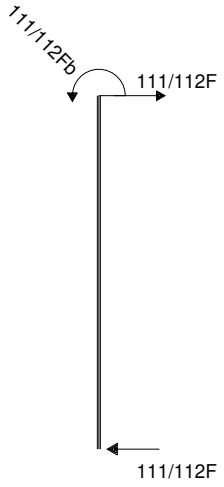
Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
$u_A\ v_A\ \varphi_A$ spostamento assoluto del nodo A.
$J_{AB}\ x_{AB}\ \vartheta_{AB}$ riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

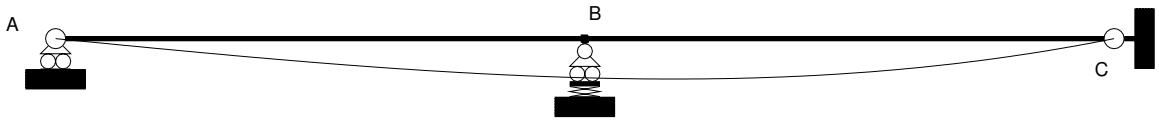




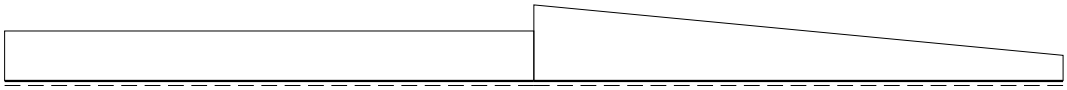


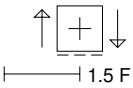

2Fb
57/112F
q
169/112F
111/112Fb

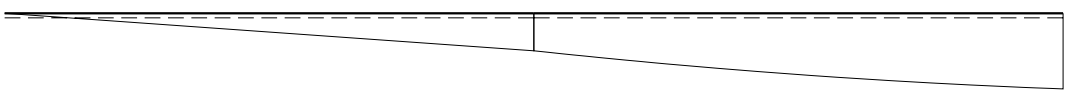

111/112Fb
111/112F
111/112F

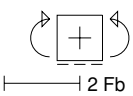

A
B
C


1 Fb3/EJ




1.5 F




2 Fb

REAZIONI

$V_A = 11/14(W/b) +23/112qb = 111/112F$
$V_B = 3/7(W/b) +5/56qb = 29/56F$
$H_C = 0$
$V_C = -17/14(W/b) +79/112qb = -57/112F$

$H_{AB} = 0$
$V_{AB} = 11/14(W/b) +23/112qb = 111/112F$
$W_{AB} = 0$
$H_{BA} = 0$
$V_{BA} = -11/14(W/b) -23/112qb = -111/112F$
$W_{BA} = 11/14W +23/112qb^2 = 111/112Fb$

$H_{BC} = 0$
$V_{BC} = 17/14(W/b) +33/112qb = 169/112F$
$W_{BC} = -11/14W -23/112qb^2 = -111/112Fb$
$H_{CB} = 0$
$V_{CB} = -17/14(W/b) +79/112qb = -57/112F$
$W_{CB} = 2W = 2Fb$

SPOSTAMENTI NODALI

$u_{AAB} = 0$
$v_A = 0$
$\varphi_{AAB} = -47/84(Wb/EJ) -83/672(qb^3/EJ) = -153/224(Fb^2/EJ)$

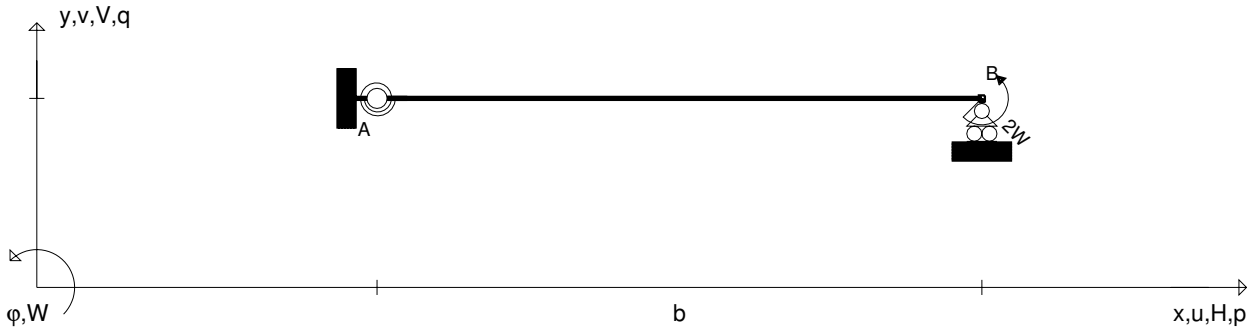
$u_B = 0$
$v_B = -3/7(Wb^2/EJ) -5/56(qb^4/EJ) = -29/56(Fb^3/EJ)$
$\varphi_B = -1/6(Wb/EJ) -1/48(qb^3/EJ) = -3/16(Fb^2/EJ)$

$u_C = 0$
$v_C = 0$
$\varphi_{CCB} = 103/84(Wb/EJ) +37/224(qb^3/EJ) = 935/672(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

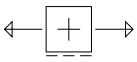
$N_{AB} = 0$
$T_{AB} = 111/112F$
$M_{AB} = 111/112Fx$

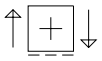
$N_{BC} = 0$
$T_{BC} = 169/112F -qx$
$M_{BC} = 111/112Fb +169/112Fx -1/2qx^2$

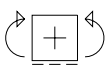


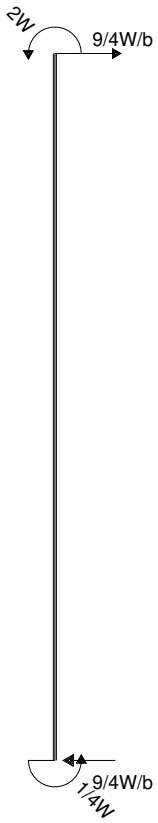
$W_B = 2W = 2Fb$ $k_A = EJ/b$ $EJ_{AB} = EJ$

Verso effettivo dei carichi riportato nel disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
Esprimere le funzioni delle azioni interne nelle aste.
Calcolare spostamento e rotazione di tutti i nodi.
u_A v_A φ_A spostamento assoluto del nodo A.
J_{AB} x_{AB} ϑ_{AB} riferimento locale asta AB con origine in A.
<> ESAME 15/01/2019 - APPELLO 01 - IPERSTATICA
<>
<> Struttura 1: Iperstatica Testo 1
<>

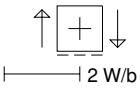


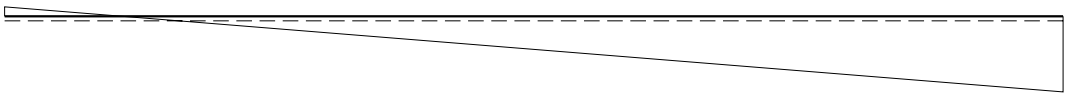


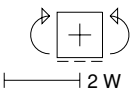



2W
9/4W/b
9/4W/b
1/4W


0.2 Wb^2/EJ







REAZIONI

$H_A = 0$
$V_A = 9/4(W/b)$
$W_A = 1/4W$
$V_B = -9/4(W/b)$

$H_{AB} = 0$
$V_{AB} = 9/4(W/b)$
$W_{AB} = 1/4W$
$H_{BA} = 0$
$V_{BA} = -9/4(W/b)$
$W_{BA} = 2W$

SPOSTAMENTI NODALI

$u_A = 0$
$v_A = 0$
$\varphi_A = -1/4(Wb/EJ)$
$u_{BBA} = 0$
$v_B = 0$
$\varphi_{BBA} = 5/8(Wb/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$
$T_{AB} = 9/4(W/b)$
$M_{AB} = -1/4W +9/4(W/b)x$