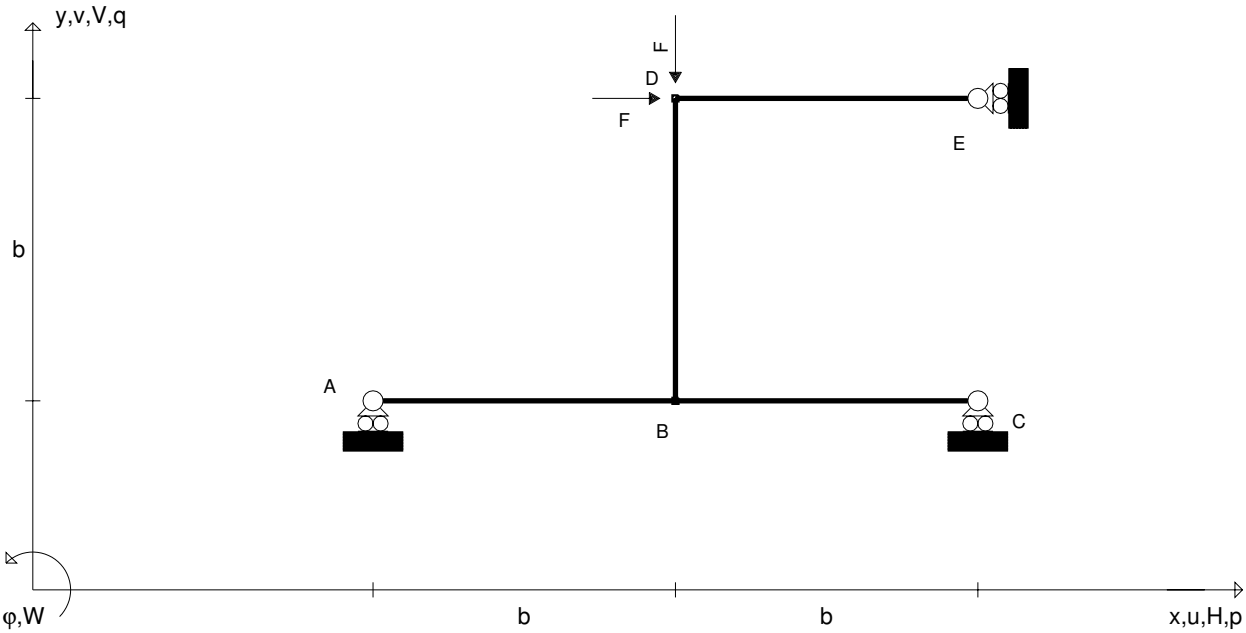

NON GUARDARE

$H_D = F$ $V_D = -F$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$ $EJ_{BD} = EJ$ $EJ_{DE} = EJ$

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.
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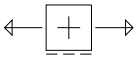
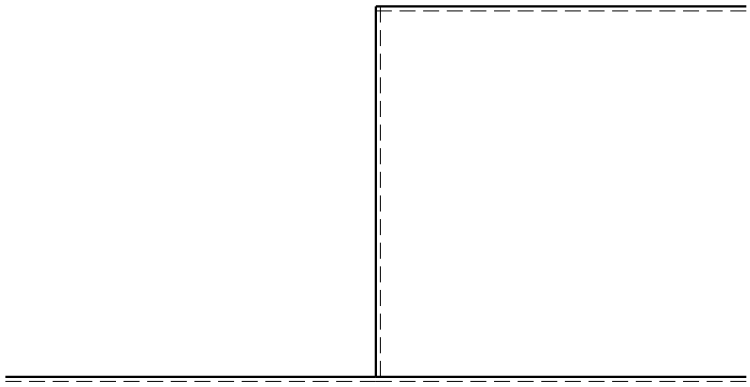
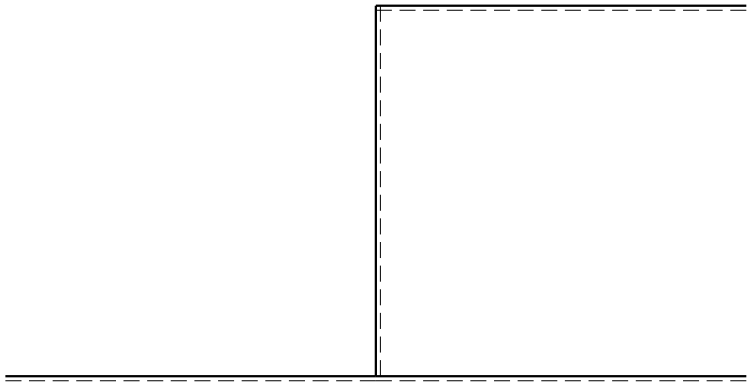
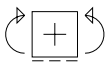
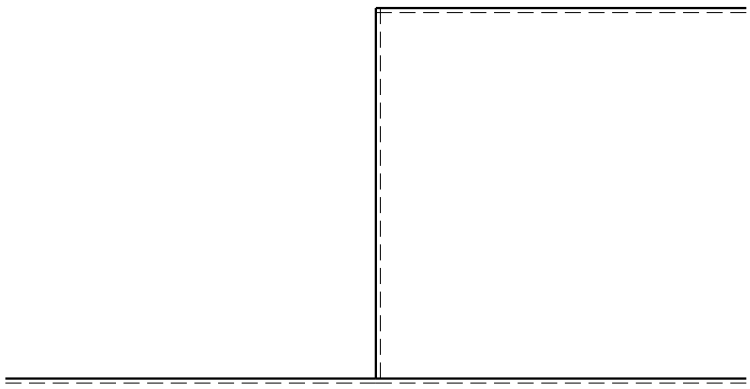


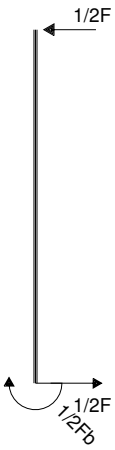


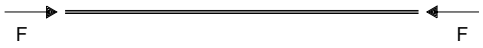


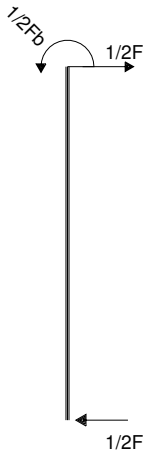


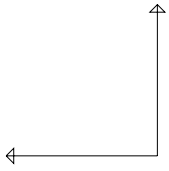



F
F

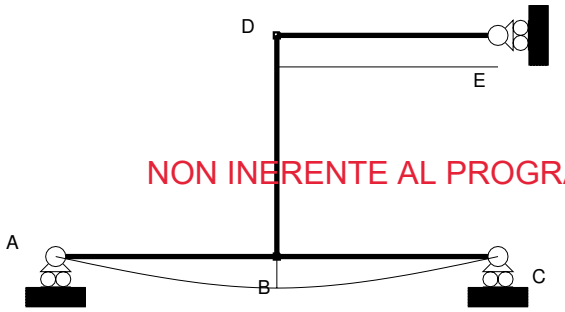

1/2F
1/2F
1/2Fb

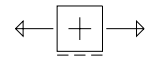

F
F


1/2Fb
1/2F
1/2F

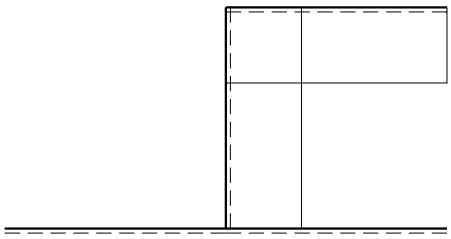


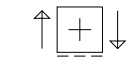
0.4 Fb^3/EJ



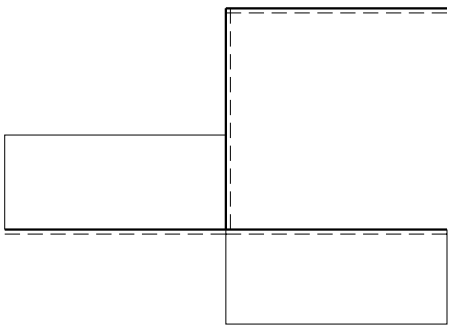


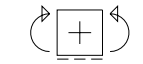
1 F



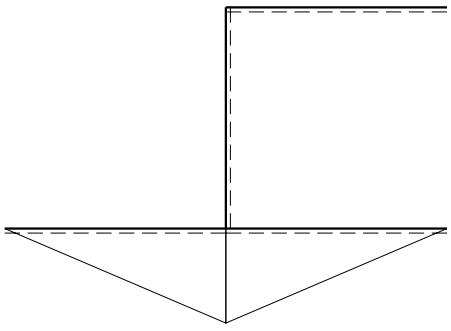


0.4 F





0.4 Fb



REAZIONI

$V_A = 1/2F$
$V_C = 1/2F$
$H_E = -F$

$H_{AB} = 0$	$H_{BC} = 0$	$H_{BD} = 0$	$H_{DE} = F$
$V_{AB} = 1/2F$	$V_{BC} = -1/2F$	$V_{BD} = F$	$V_{DE} = 0$
$W_{AB} = 0$	$W_{BC} = -1/2Fb$	$W_{BD} = 0$	$W_{DE} = 0$
$H_{BA} = 0$	$H_{CB} = 0$	$H_{DB} = 0$	$H_{ED} = -F$
$V_{BA} = -1/2F$	$V_{CB} = 1/2F$	$V_{DB} = -F$	$V_{ED} = 0$
$W_{BA} = 1/2Fb$	$W_{CB} = 0$	$W_{DB} = 0$	$W_{ED} = 0$

SPOSTAMENTI NODALI

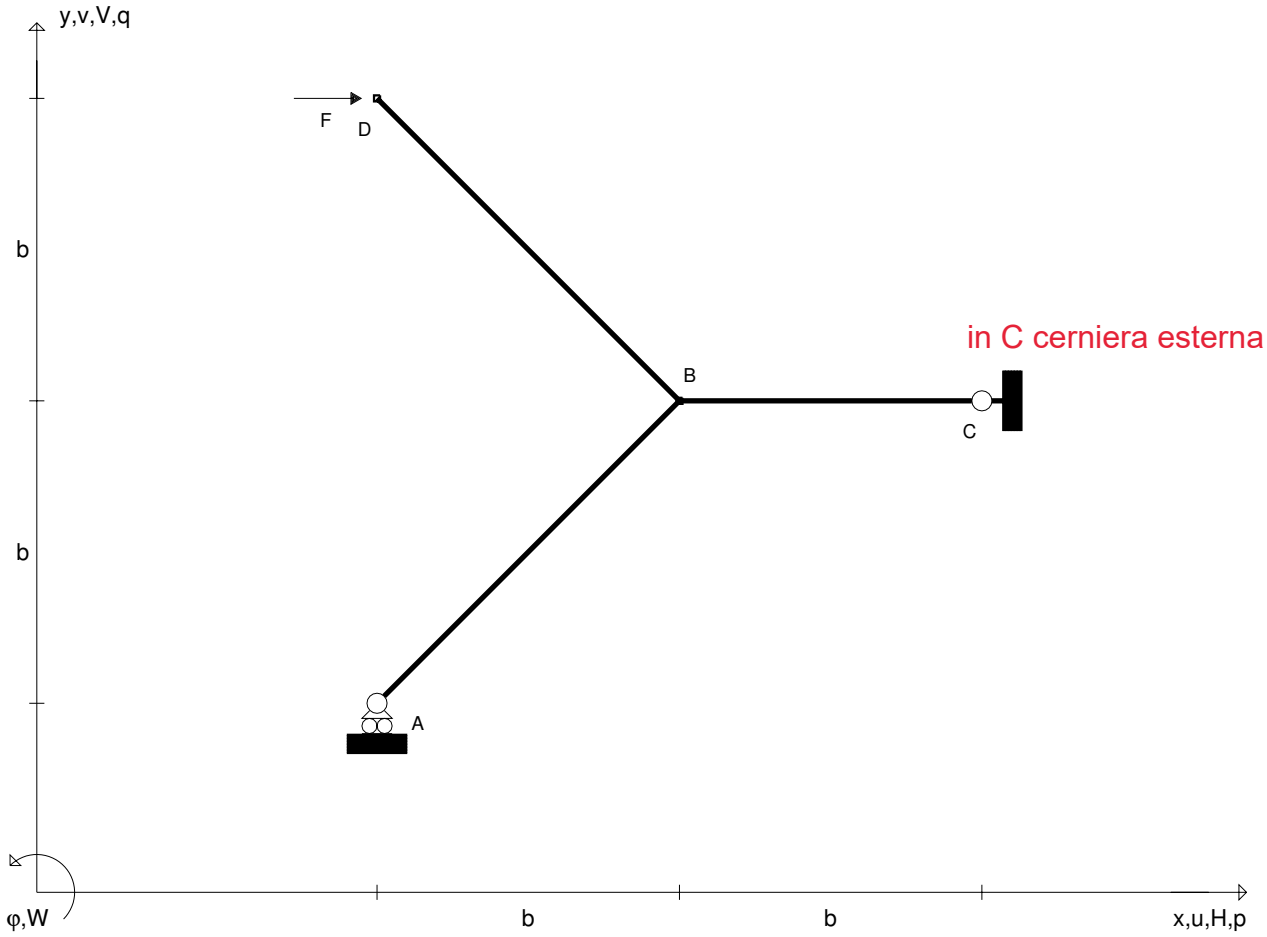
NON INERENTE AL PROGRAMMA

$u_{AAB} = 0$	$u_B = 0$	$u_{CCB} = 0$	$u_D = 0$
$v_A = 0$	$v_B = -1/6(Fb^3/EJ)$	$v_C = 0$	$v_D = -1/6(Fb^3/EJ)$
$\varphi_{AAB} = -1/4(Fb^2/EJ)$	$\varphi_B = 0$	$\varphi_{CCB} = 1/4(Fb^2/EJ)$	$\varphi_D = 0$

$u_E = 0$
$v_{EED} = -1/6(Fb^3/EJ)$
$\varphi_{EED} = 0$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$	$N_{BC} = 0$	$N_{BD} = -F$	$N_{DE} = -F$
$T_{AB} = 1/2F$	$T_{BC} = -1/2F$	$T_{BD} = 0$	$T_{DE} = 0$
$M_{AB} = 1/2Fx$	$M_{BC} = 1/2Fb - 1/2Fx$	$M_{BD} = 0$	$M_{DE} = 0$



$H_D = F$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$ $EJ_{BD} = EJ$

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.
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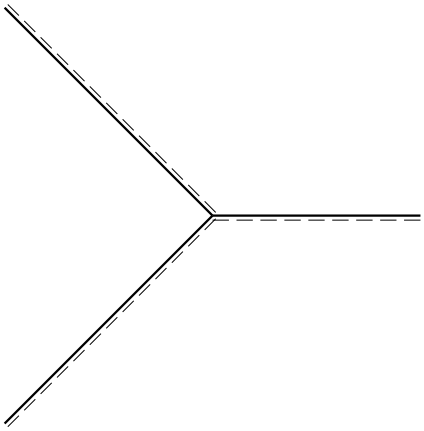
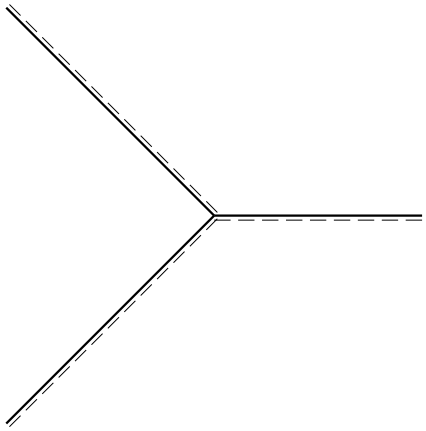
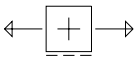
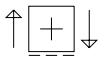
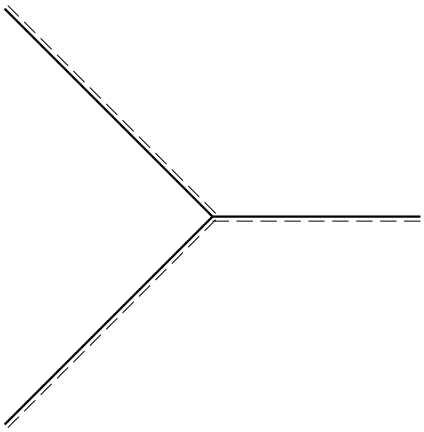
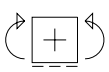


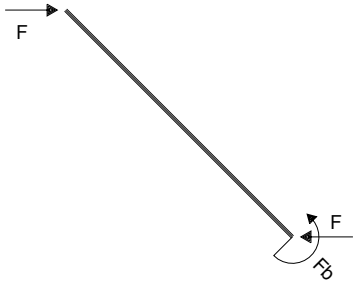




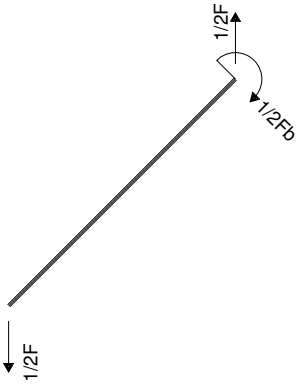


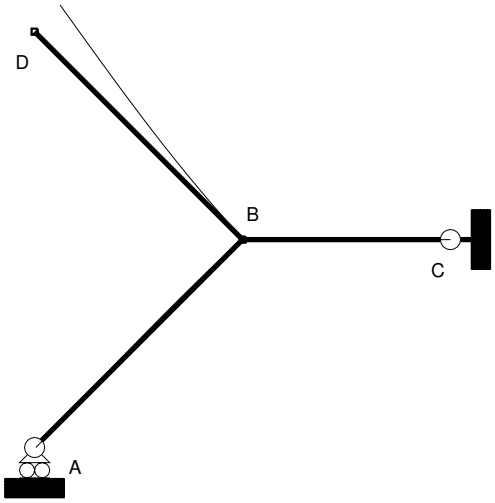


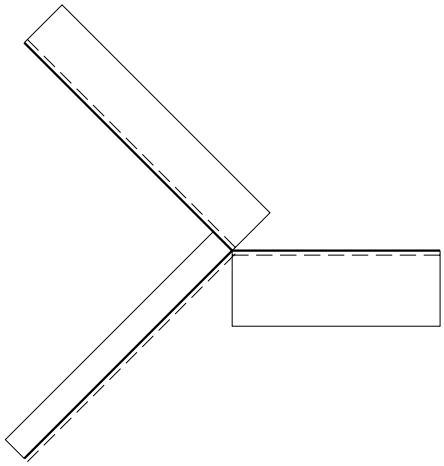



F
F
Fb

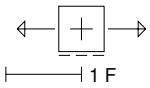

1/2F
1/2F
F
F
1/2Fb

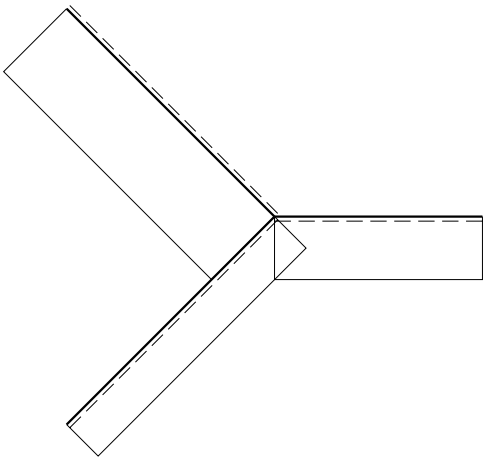

1/2F
1/2Fb
1/2F

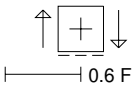


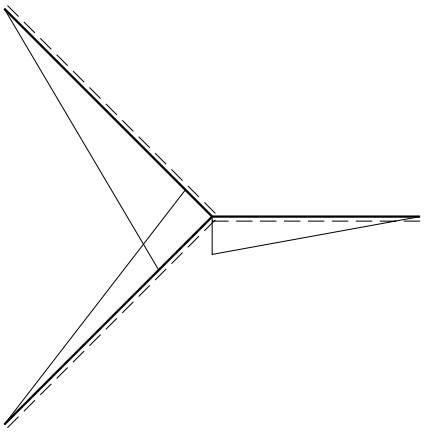


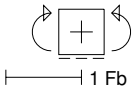
$2\ Fb^3/EJ$











REAZIONI

$V_A = -1/2F$
$H_C = -F$
$V_C = 1/2F$

$H_{AB} = 0$	$H_{BC} = F$	$H_{BD} = -F$
$V_{AB} = -1/2F$	$V_{BC} = -1/2F$	$V_{BD} = 0$
$W_{AB} = 0$	$W_{BC} = -1/2Fb$	$W_{BD} = Fb$
$H_{BA} = 0$	$H_{CB} = -F$	$H_{DB} = F$
$V_{BA} = 1/2F$	$V_{CB} = 1/2F$	$V_{DB} = 0$
$W_{BA} = -1/2Fb$	$W_{CB} = 0$	$W_{DB} = 0$

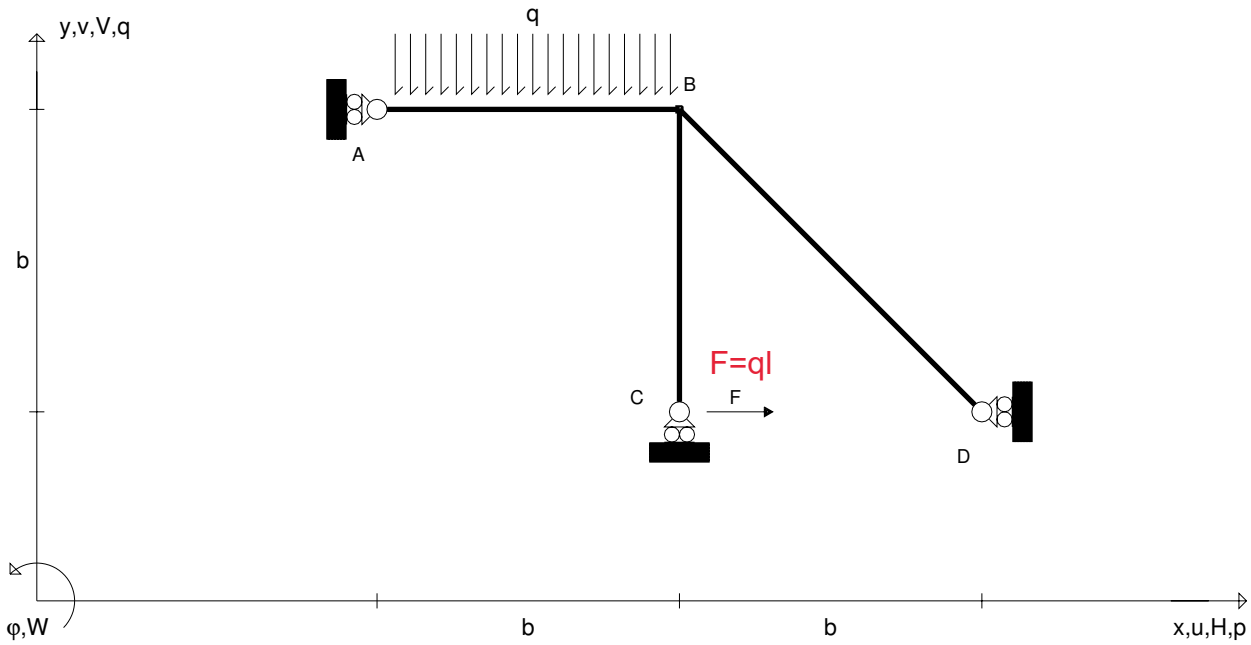
SPOSTAMENTI NODALI

$u_{AAB} = -(1-\sqrt{2})/12(Fb^3/EJ)$	$u_B = 0$	$u_C = 0$
$v_A = 0$	$v_B = -(1-\sqrt{2})/12(Fb^3/EJ)$	$v_C = 0$
$\varphi_{AAB} = -(1-2\sqrt{2})/12(Fb^2/EJ)$	$\varphi_B = -(1+\sqrt{2})/12(Fb^2/EJ)$	$\varphi_{CCB} = (2-\sqrt{2})/12(Fb^2/EJ)$

$u_D = (1+5\sqrt{2})/12(Fb^3/EJ)$
$v_D = \sqrt{2}/2(Fb^3/EJ)$
$\varphi_D = -(1+7\sqrt{2})/12(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = \sqrt{2}/4F$	$N_{BC} = -F$	$N_{BD} = -\sqrt{2}/2F$
$T_{AB} = -\sqrt{2}/4F$	$T_{BC} = -1/2F$	$T_{BD} = \sqrt{2}/2F$
$M_{AB} = -\sqrt{2}/4Fx$	$M_{BC} = 1/2Fb - 1/2Fx$	$M_{BD} = -Fb + \sqrt{2}/2Fx$



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

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.
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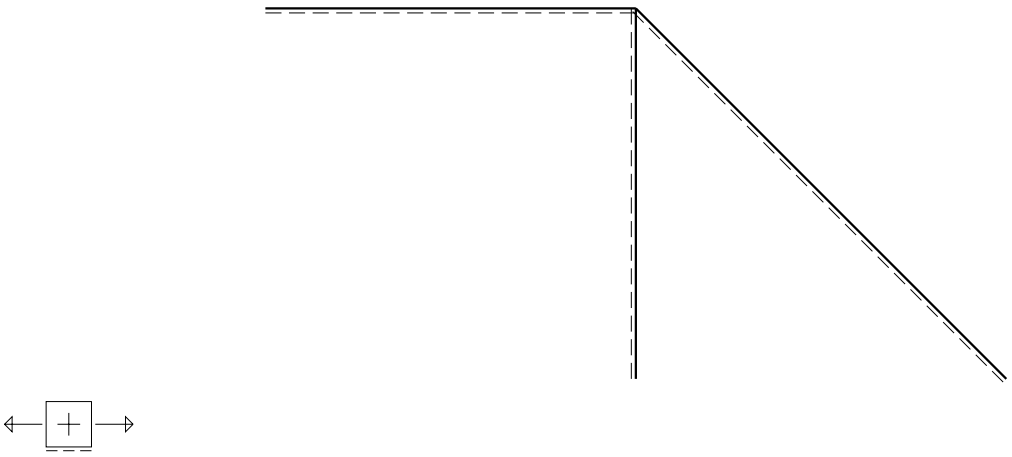
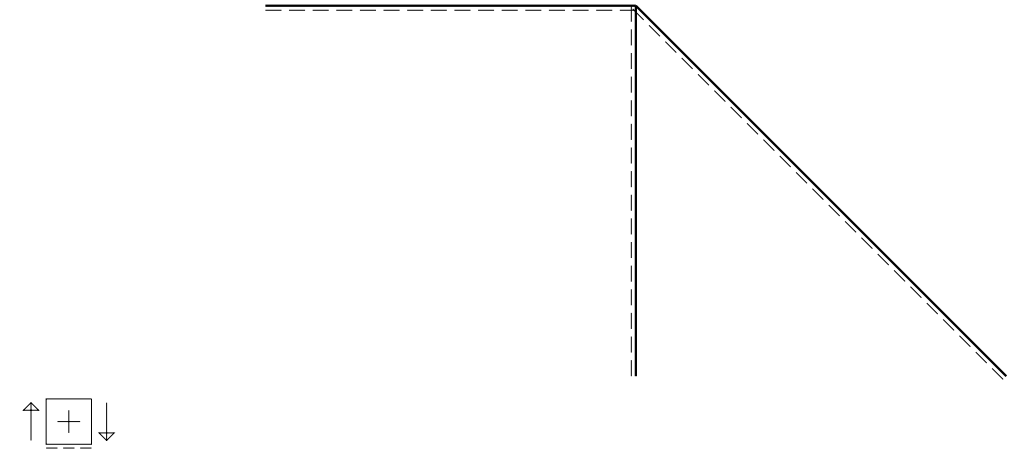
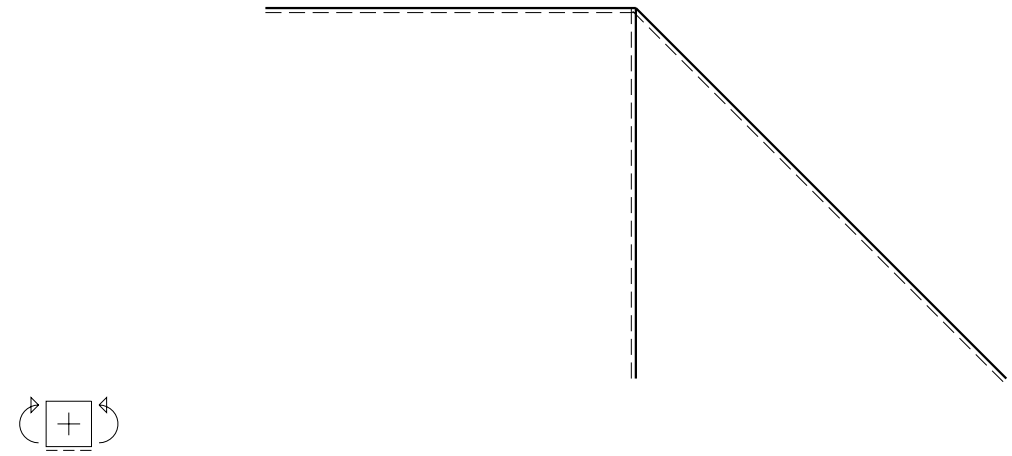
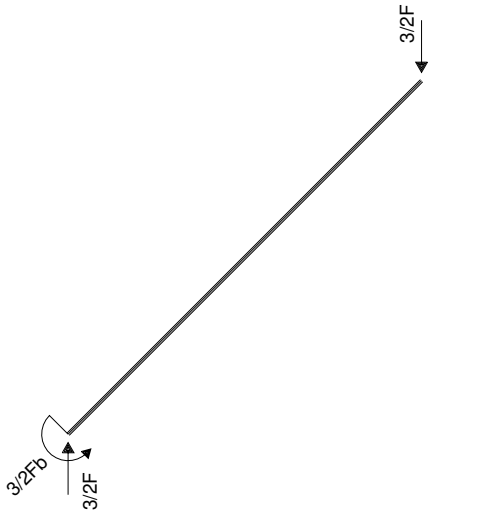
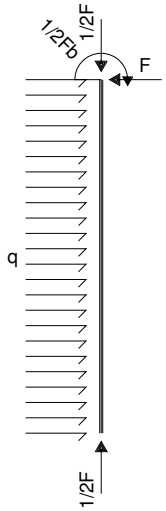
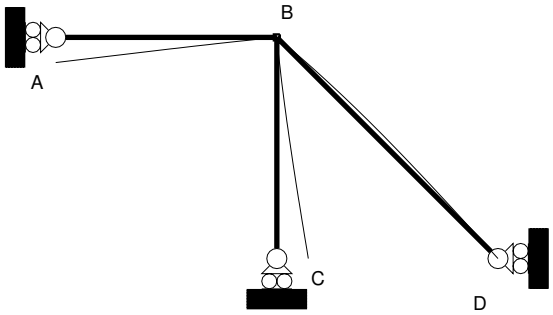




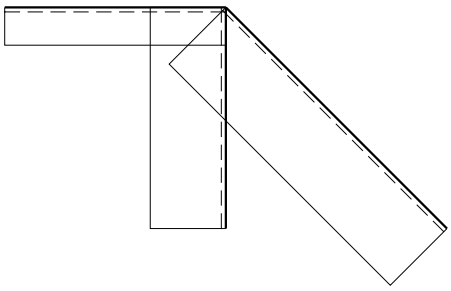


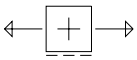

3/2F
3/2Fb
3/2F
F
F
F
Fb
F


1/2Fb
1/2F
F
q
1/2F

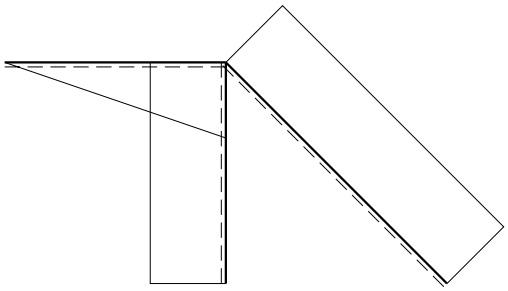


2.5 Fb^3/EJ

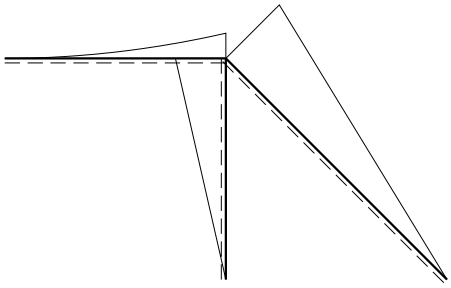


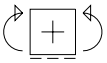


1 F



1 F





1.5 Fb

REAZIONI

$H_A = 1/2qb = 1/2F$
$V_C = qb = F$
$H_D = -F -1/2qb = -3/2F$

$H_{AB} = 1/2qb = 1/2F$
$V_{AB} = 0$
$W_{AB} = 0$
$H_{BA} = -1/2qb = -1/2F$
$V_{BA} = qb = F$
$W_{BA} = -1/2qb^2 = -1/2Fb$

$H_{BC} = -F = -F$
$V_{BC} = -qb = -F$
$W_{BC} = -Fb = -Fb$
$H_{CB} = F = F$
$V_{CB} = qb = F$
$W_{CB} = 0$

$H_{BD} = F +1/2qb = 3/2F$
$V_{BD} = 0$
$W_{BD} = Fb +1/2qb^2 = 3/2Fb$
$H_{DB} = -F -1/2qb = -3/2F$
$V_{DB} = 0$
$W_{DB} = 0$

SPOSTAMENTI NODALI

$u_A = 0$
$v_{AAB} = -\sqrt{2}/3(Fb^3/EJ) -(3+4\sqrt{2})/24(qb^4/EJ) = -(1+4\sqrt{2})/8(Fb^3/EJ)$
$\varphi_{AAB} = \sqrt{2}/3(Fb^2/EJ) +(1+\sqrt{2})/6(qb^3/EJ) = (1+3\sqrt{2})/6(Fb^2/EJ)$

$u_B = 0$
$v_B = 0$
$\varphi_B = \sqrt{2}/3(Fb^2/EJ) +\sqrt{2}/6(qb^3/EJ) = \sqrt{2}/2(Fb^2/EJ)$

$u_{CCB} = (1+\sqrt{2})/3(Fb^3/EJ) +\sqrt{2}/6(qb^4/EJ) = (2+3\sqrt{2})/6(Fb^3/EJ)$
$v_C = 0$
$\varphi_{CCB} = (3+2\sqrt{2})/6(Fb^2/EJ) +\sqrt{2}/6(qb^3/EJ) = (1+\sqrt{2})/2(Fb^2/EJ)$

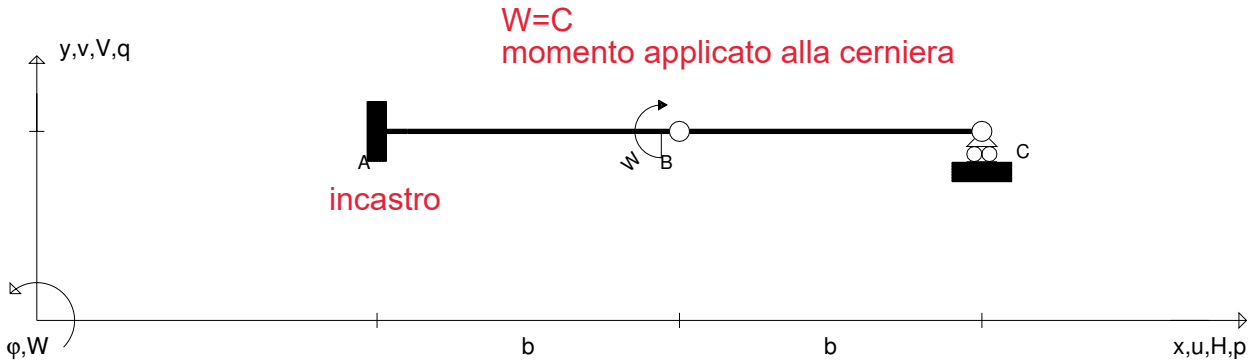
$u_D = 0$
$v_{DDB} = 0$
$\varphi_{DDB} = -\sqrt{2}/6(Fb^2/EJ) -\sqrt{2}/12(qb^3/EJ) = -\sqrt{2}/4(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = -1/2F$
$T_{AB} = -qx$
$M_{AB} = -1/2qx^2$

$N_{BC} = -F$
$T_{BC} = -F$
$M_{BC} = Fb -Fx$

$N_{BD} = -3\sqrt{2}/4F$
$T_{BD} = 3\sqrt{2}/4F$
$M_{BD} = -3/2Fb +3\sqrt{2}/4Fx$



$W_{BA} = -W = -Fb$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

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.
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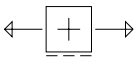
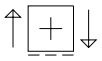
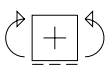
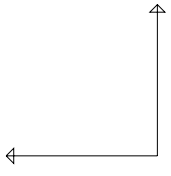
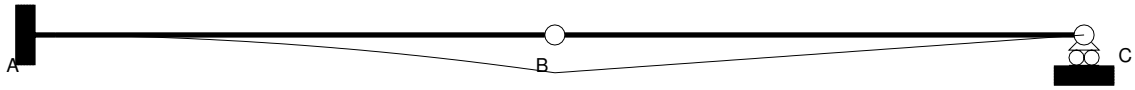




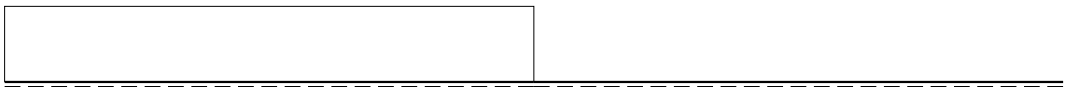


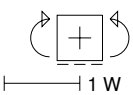

M
M




A
B
C


1 Wb2/EJ




1 W

REAZIONI

$H_A = 0$
$V_A = 0$
$W_A = W$
$W_B = -W$
$V_C = 0$

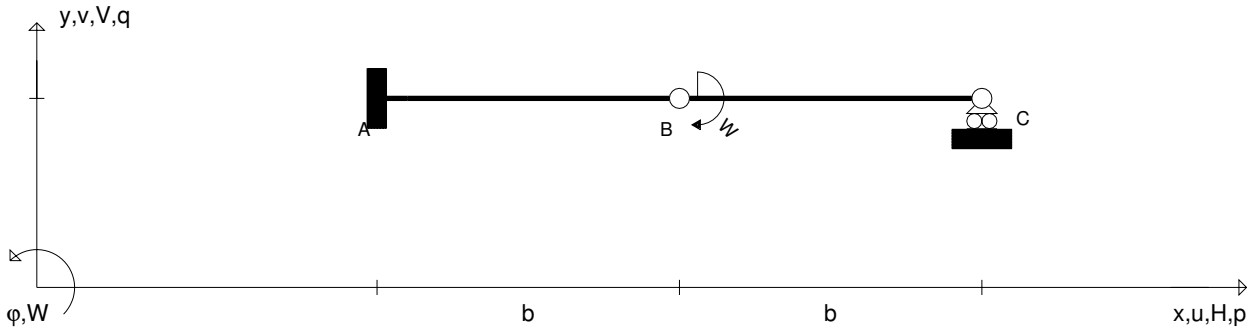
$H_{AB} = 0$	$H_{BC} = 0$
$V_{AB} = 0$	$V_{BC} = 0$
$W_{AB} = W$	$W_{BC} = 0$
$H_{BA} = 0$	$H_{CB} = 0$
$V_{BA} = 0$	$V_{CB} = 0$
$W_{BA} = -W$	$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_A = 0$	$u_B = 0$	$u_{CCB} = 0$
$v_A = 0$	$v_B = -1/2(Wb^2/EJ)$	$v_C = 0$
$\varphi_A = 0$	$\varphi_B = 0$	$\varphi_{CCB} = 1/2(Wb/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$	$N_{BC} = 0$
$T_{AB} = 0$	$T_{BC} = 0$
$M_{AB} = -W$	$M_{BC} = 0$



$W_{BC} = -W = -Fb$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

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.
$u_A\ v_A\ \varphi_A$ spostamento assoluto del nodo A.
$J_{AB}\ x_{AB}\ \vartheta_{AB}$ riferimento locale asta AB con origine in A.
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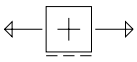
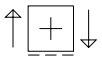
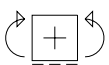
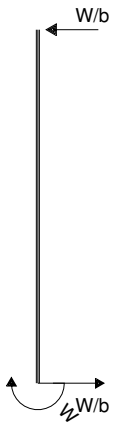
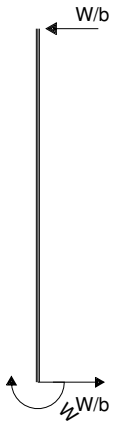
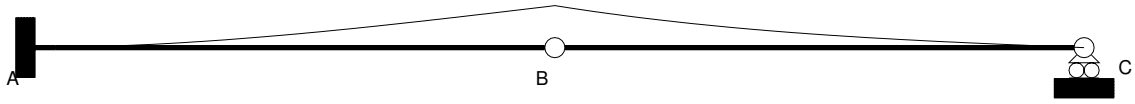




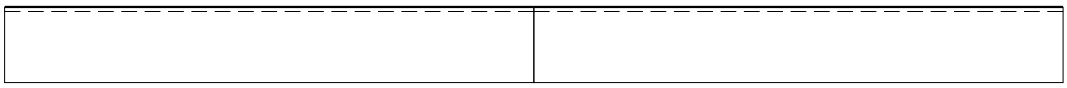


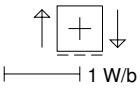

W/b
W/b

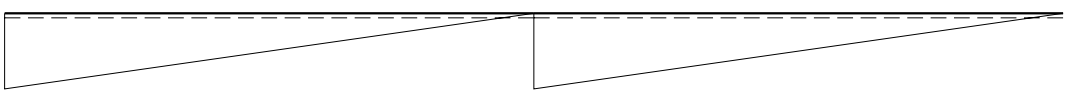

W/b
W/b

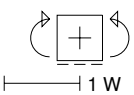



0.6 Wb^2/EJ









REAZIONI

$H_A = 0$
$V_A = -(W/b)$
$W_A = -W$
$W_B = -W$
$V_C = (W/b)$

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

$H_{BC} = 0$
$V_{BC} = -(W/b)$
$W_{BC} = -W$
$H_{CB} = 0$
$V_{CB} = (W/b)$
$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_A = 0$
$v_A = 0$
$\varphi_A = 0$

$u_B = 0$
$v_B = 1/3(Wb^2/EJ)$
$\varphi_B = 0$

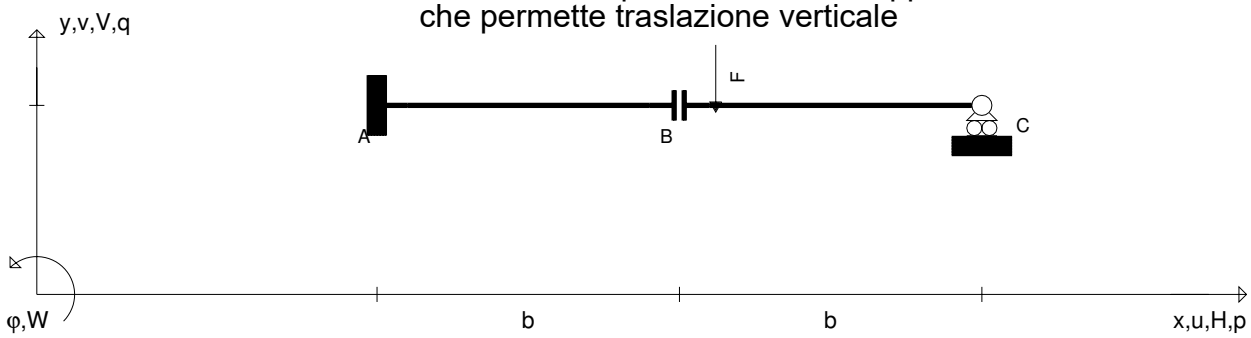
$u_{CCB} = 0$
$v_C = 0$
$\varphi_{CCB} = -1/6(Wb/EJ)$

AZIONI INTERNE (coordinate locali)

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

$N_{BC} = 0$
$T_{BC} = -(W/b)$
$M_{BC} = 2W -(W/b)x$

in B vincolo equivalente a una doppia biella
che permette traslazione verticale



$V_{BC} = -F$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

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.
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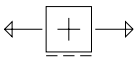
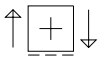
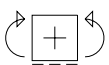
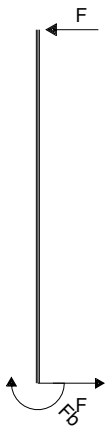
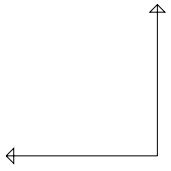


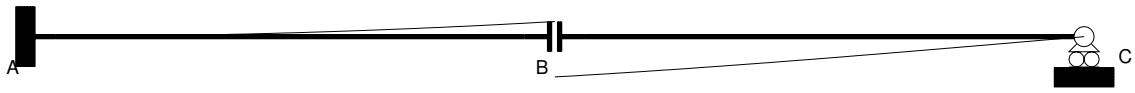




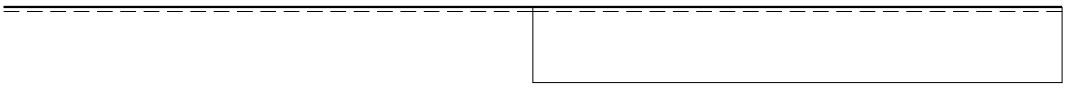

F
Fb
F

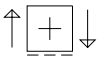

Fb
Fb



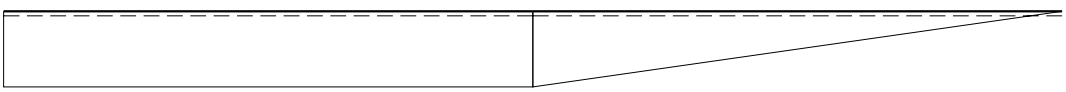


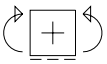
2.5 Fb^3/EJ





1 F





1 Fb

REAZIONI

$H_A = 0$
$V_A = 0$
$W_A = -Fb$
$V_C = F$

$H_{AB} = 0$
$V_{AB} = 0$
$W_{AB} = -Fb$
$H_{BA} = 0$
$V_{BA} = 0$
$W_{BA} = Fb$

$H_{BC} = 0$
$V_{BC} = -F$
$W_{BC} = -Fb$
$H_{CB} = 0$
$V_{CB} = F$
$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_A = 0$
$v_A = 0$
$\varphi_A = 0$

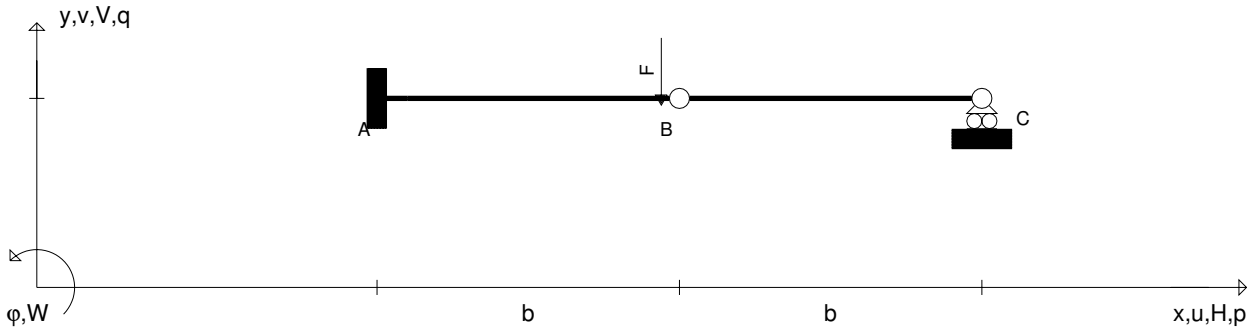
$u_B = 0$
$v_{BBC} = -4/3(Fb^3/EJ)$
$\varphi_B = (Fb^2/EJ)$

$u_{CCB} = 0$
$v_C = 0$
$\varphi_{CCB} = 3/2(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$
$T_{AB} = 0$
$M_{AB} = Fb$

$N_{BC} = 0$
$T_{BC} = -2F$
$M_{BC} = Fb -2Fx$



$V_{BA} = -F$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$

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.
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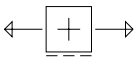
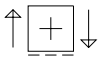
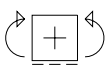
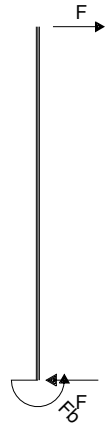
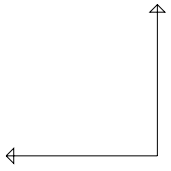
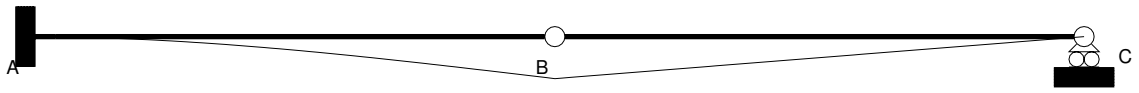




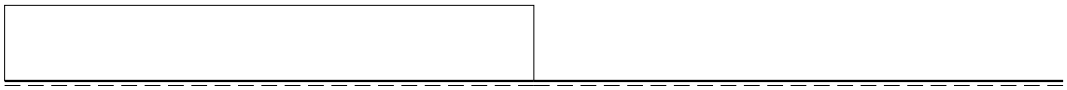


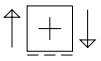

F
FD
F



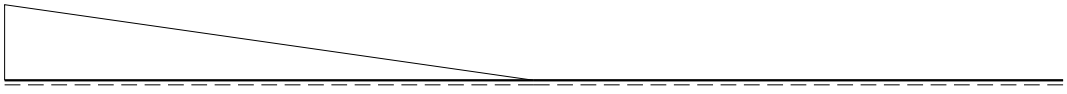


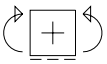
0.6 Fb^3/EJ





1 F





1 Fb

REAZIONI

$H_A = 0$
$V_A = F$
$W_A = Fb$
$W_B = 0$
$V_C = 0$

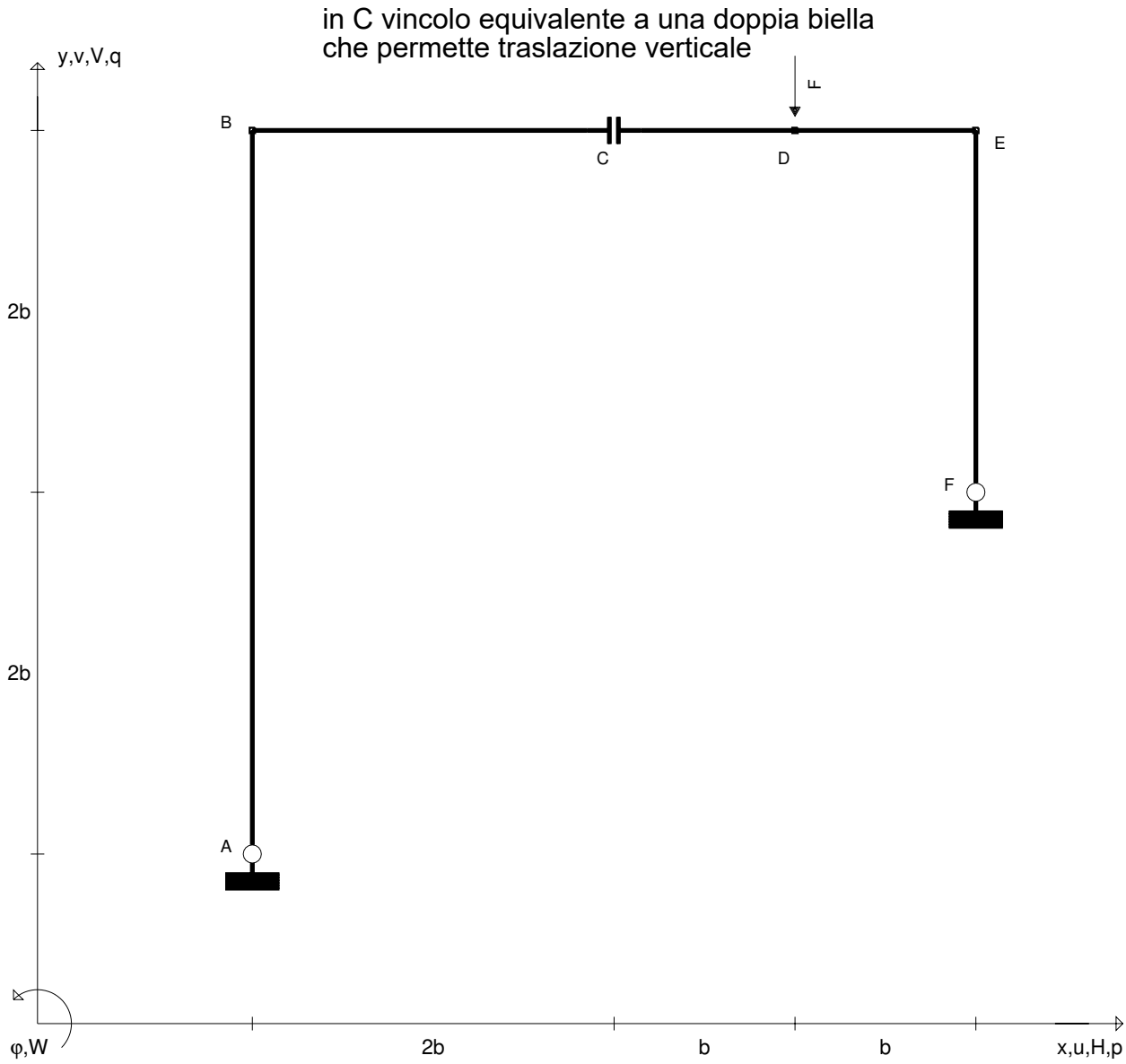
$H_{AB} = 0$	$H_{BC} = 0$
$V_{AB} = F$	$V_{BC} = 0$
$W_{AB} = Fb$	$W_{BC} = 0$
$H_{BA} = 0$	$H_{CB} = 0$
$V_{BA} = -F$	$V_{CB} = 0$
$W_{BA} = 0$	$W_{CB} = 0$

SPOSTAMENTI NODALI

$u_A = 0$	$u_B = 0$	$u_{CCB} = 0$
$v_A = 0$	$v_B = -1/3(Fb^3/EJ)$	$v_C = 0$
$\varphi_A = 0$	$\varphi_B = 0$	$\varphi_{CCB} = 1/3(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$	$N_{BC} = 0$
$T_{AB} = F$	$T_{BC} = 0$
$M_{AB} = -Fb + Fx$	$M_{BC} = 0$



$V_D = -F$ $EJ_{AB} = EJ$ $EJ_{BC} = EJ$ $EJ_{CD} = EJ$ $EJ_{DE} = EJ$ $EJ_{EF} = EJ$

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.
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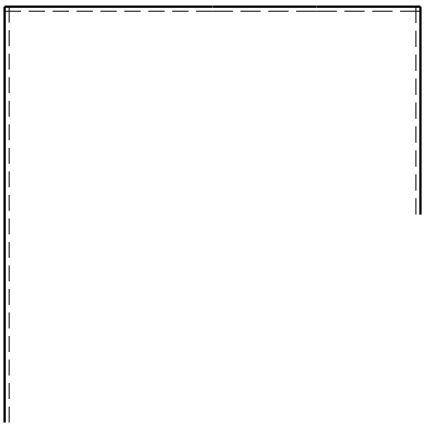
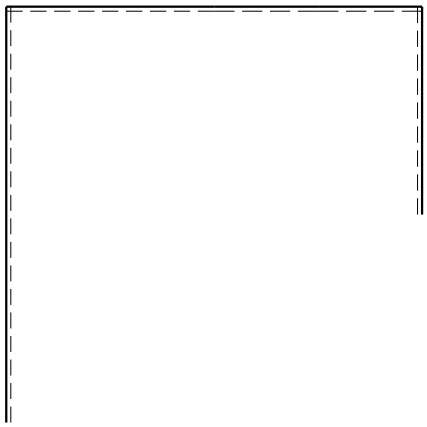
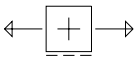
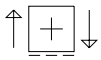
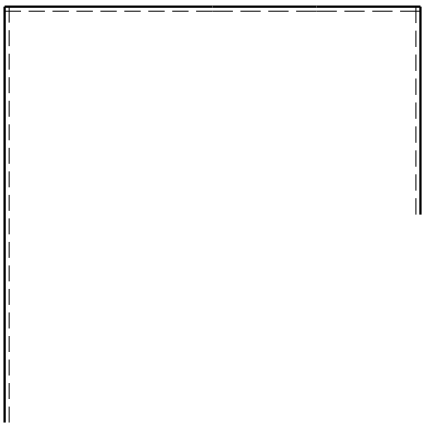
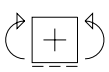


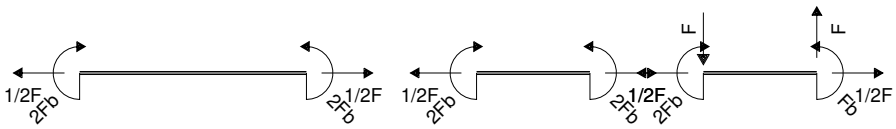


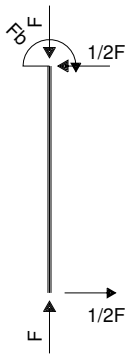


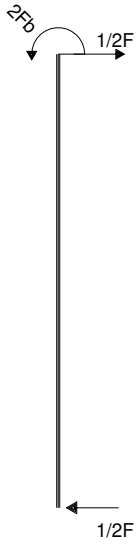


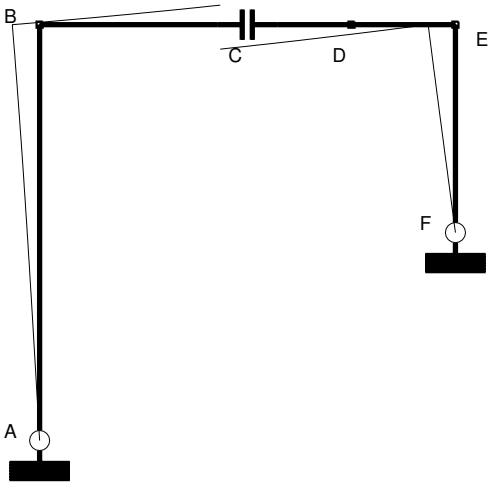


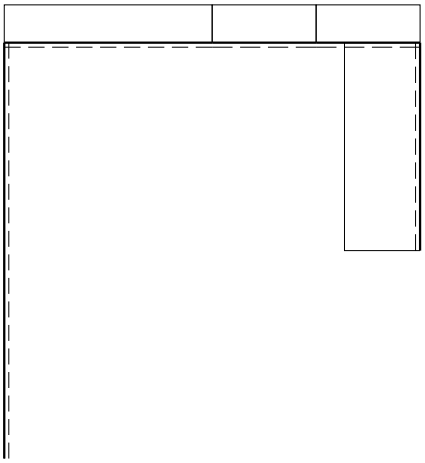



1/2F
2Fb
1/2F
2Fb
1/2F
2Fb
1/2F
2Fb
F
F
1/2F
Fb

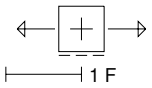

Fb
F
1/2F
F
1/2F

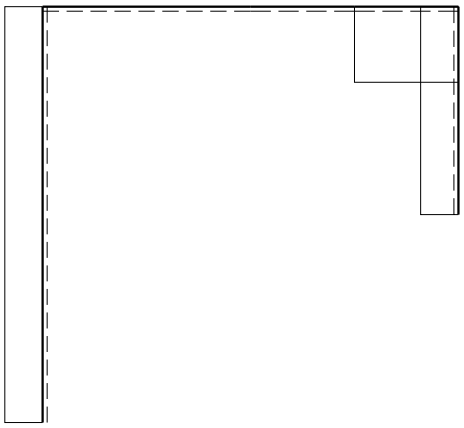

2Fb
1/2F
1/2F

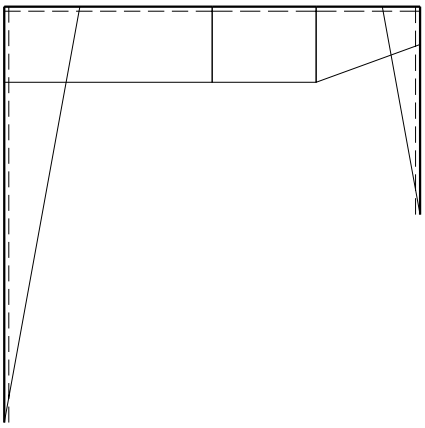


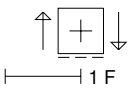


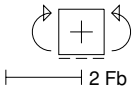
$120\ Fb^3/EJ$











REAZIONI

$H_A = -1/2F$
$V_A = 0$
$H_F = 1/2F$
$V_F = F$

$H_{AB} = -1/2F$
$V_{AB} = 0$
$W_{AB} = 0$
$H_{BA} = 1/2F$
$V_{BA} = 0$
$W_{BA} = 2Fb$

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

$H_{CD} = -1/2F$
$V_{CD} = 0$
$W_{CD} = -2Fb$
$H_{DC} = 1/2F$
$V_{DC} = 0$
$W_{DC} = 2Fb$

$H_{DE} = -1/2F$
$V_{DE} = -F$
$W_{DE} = -2Fb$
$H_{ED} = 1/2F$
$V_{ED} = F$
$W_{ED} = Fb$

$H_{EF} = -1/2F$
$V_{EF} = -F$
$W_{EF} = -Fb$
$H_{FE} = 1/2F$
$V_{FE} = F$
$W_{FE} = 0$

SPOSTAMENTI NODALI

$u_A = 0$
$v_A = 0$
$\varphi_{AAB} = 19/2(Fb^2/EJ)$

$u_B = -130/3(Fb^3/EJ)$
$v_B = 0$
$\varphi_B = 27/2(Fb^2/EJ)$

$u_C = -130/3(Fb^3/EJ)$
$v_{CCD} = -233/6(Fb^3/EJ)$
$\varphi_C = 35/2(Fb^2/EJ)$

$u_D = -130/3(Fb^3/EJ)$
$v_D = -61/3(Fb^3/EJ)$
$\varphi_D = 39/2(Fb^2/EJ)$

$u_E = -130/3(Fb^3/EJ)$
$v_E = 0$
$\varphi_E = 21(Fb^2/EJ)$

$u_F = 0$
$v_F = 0$
$\varphi_{FFE} = 22(Fb^2/EJ)$

AZIONI INTERNE (coordinate locali)

$N_{AB} = 0$
$T_{AB} = 1/2F$
$M_{AB} = 1/2Fx$

$N_{BC} = 1/2F$
$T_{BC} = 0$
$M_{BC} = 2Fb$

$N_{CD} = 1/2F$
$T_{CD} = 0$
$M_{CD} = 2Fb$

$N_{DE} = 1/2F$
$T_{DE} = -F$
$M_{DE} = 2Fb -Fx$

$N_{EF} = -F$
$T_{EF} = -1/2F$
$M_{EF} = Fb -1/2Fx$