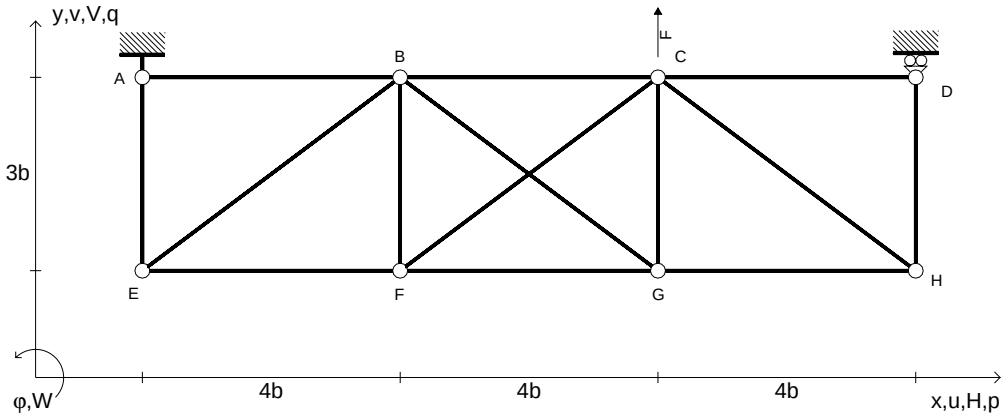
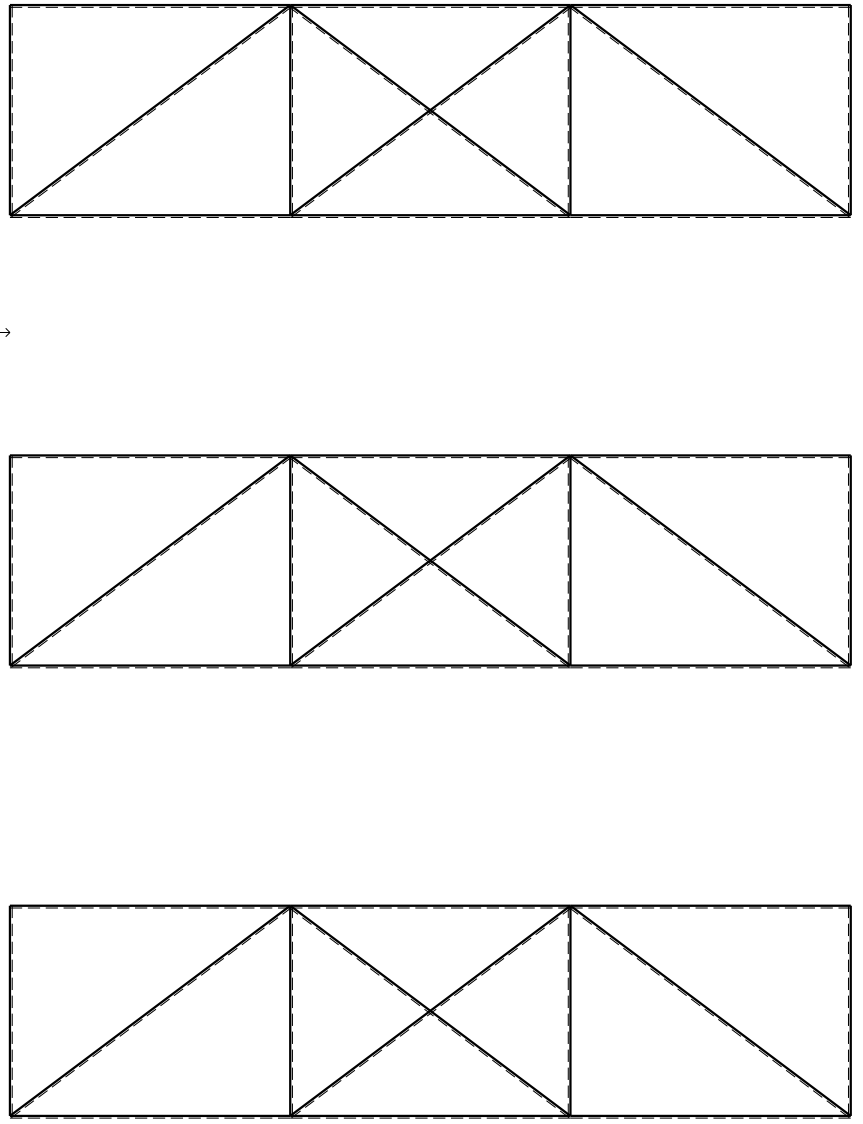


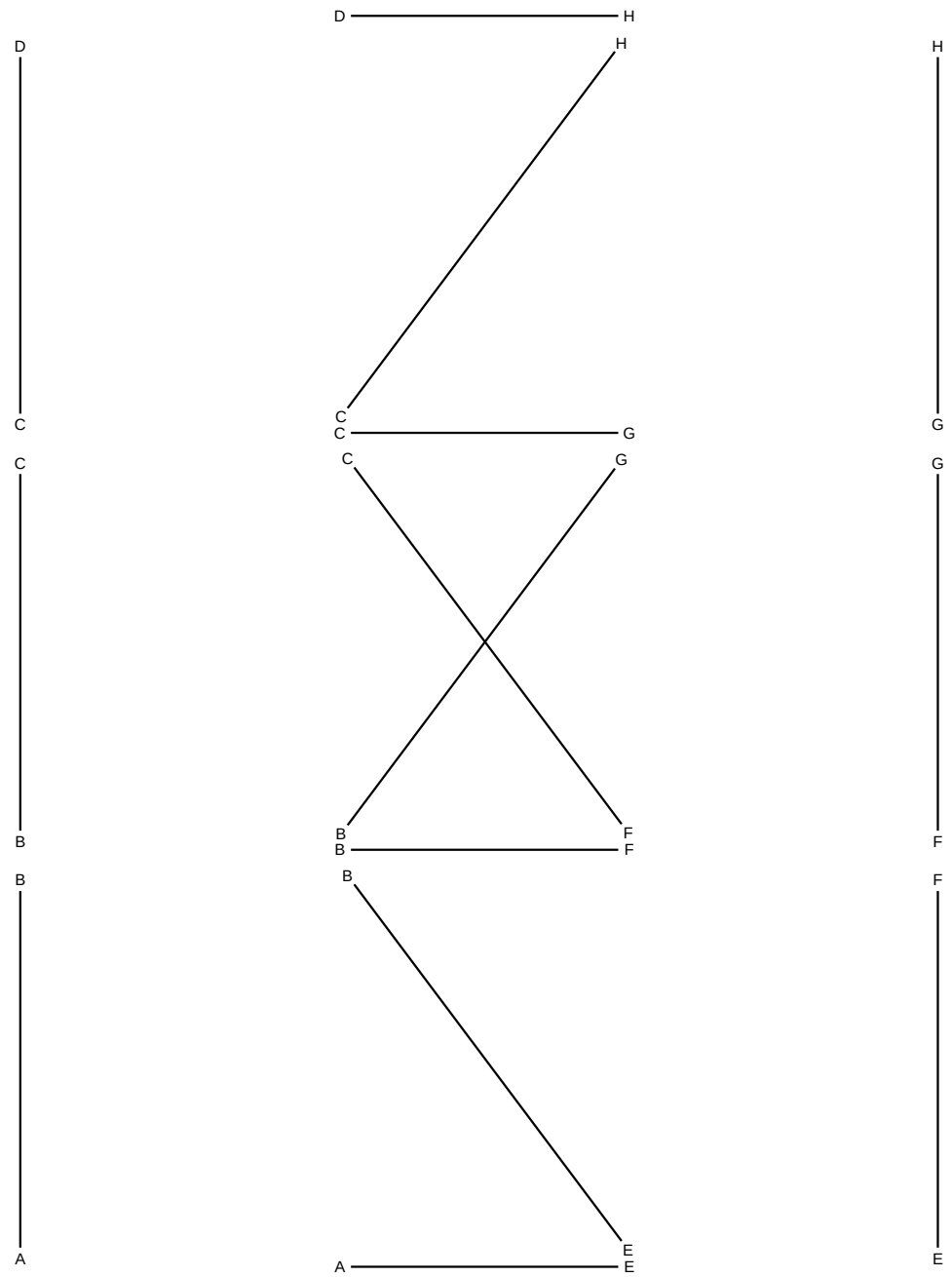
$V_C = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

$u_F = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

$v_F = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo F
Calcolare lo spostamento verticale del nodo F





REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_F =

v_F =

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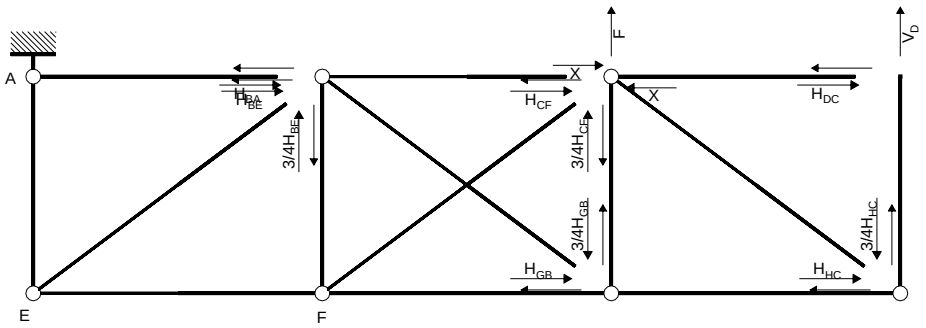


EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db + 3H_{BA}b = -8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db + 3H_{GB}b = -3Xb - 4Fb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA}b + 3H_{BE}b - 3H_{GB}b = 3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db + 3H_{DC}b + 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC}b + 3H_{CF}b - 3H_{HC}b = -3Xb$

Rotazione intorno a H: aste HD

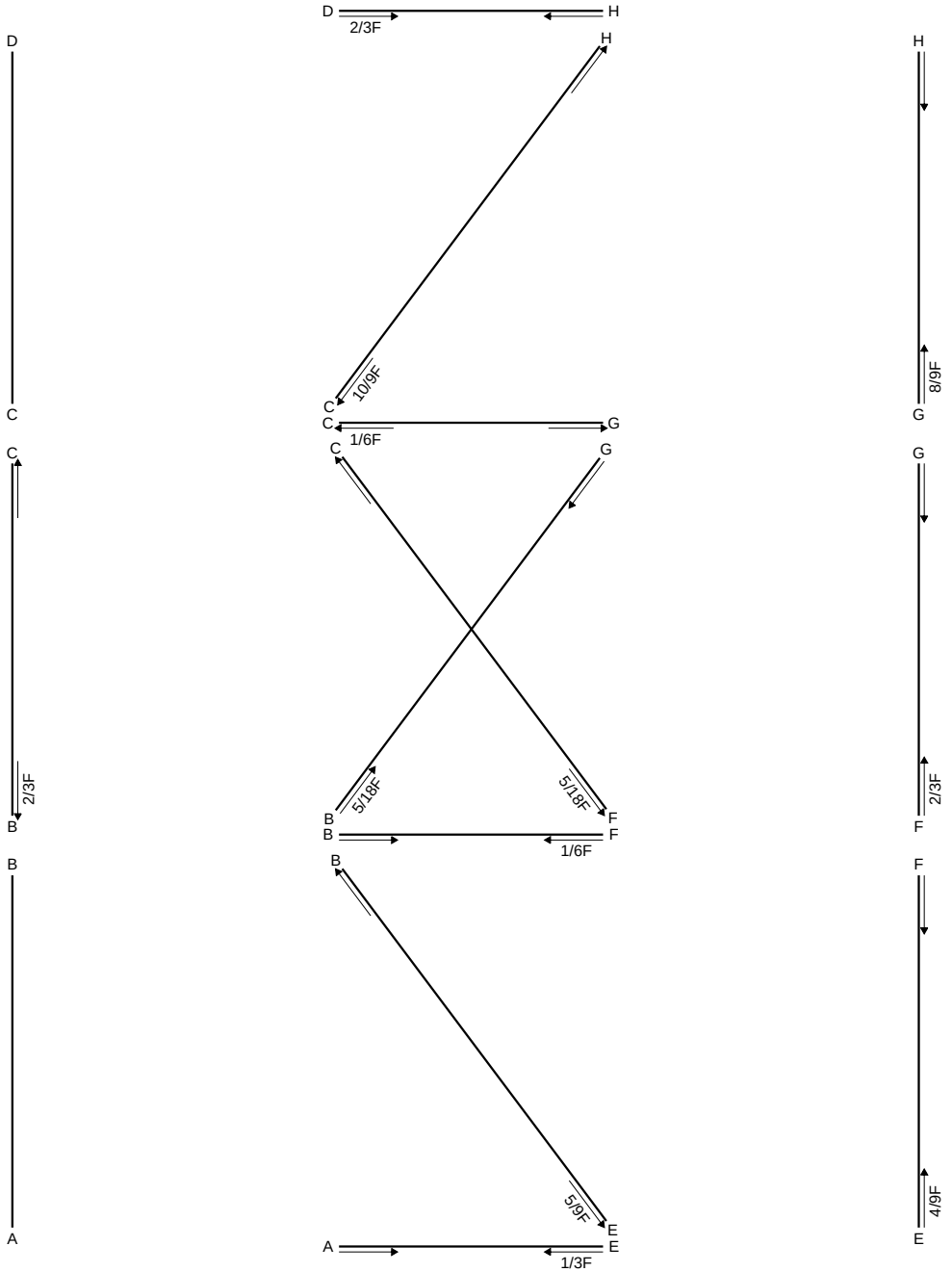
$3H_{DC}b = 0$

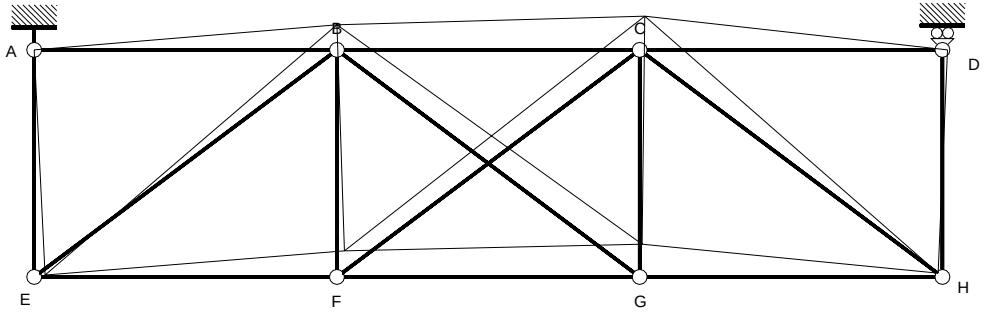
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-8
φ_{EF}	12	3	0	0	0	0	0		0	-8
φ_{FG}	8	0	0	0	0	3	0		-3	-4
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

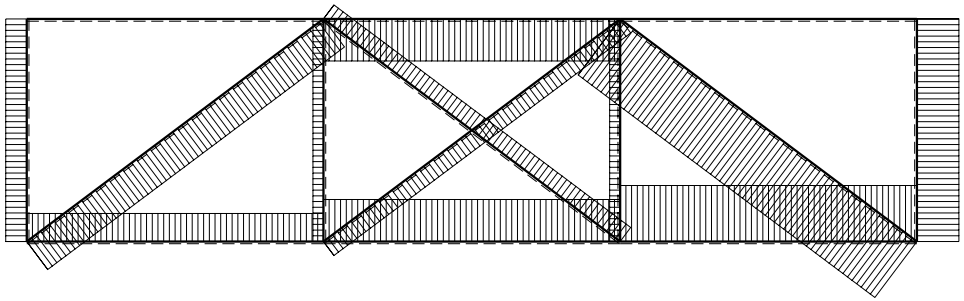
Soluzione del sistema

		Xb	Fb
V_Db		0	-2/3
$H_{BA}b$		0	0
$H_{GB}b$		-1	4/9
$H_{BE}b$	=	0	4/9
$H_{DC}b$		0	0
$H_{CF}b$		-1	8/9
$H_{HC}b$		0	8/9





⟝ 40 Fb/EA



⟵ + ⟶ ⟝ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -1/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = 2/3F$ $N_{CD} = 0$ $N_{EB} = 5/9F$ $N_{FC} = 5/18F$ $N_{BG} = -5/18F$

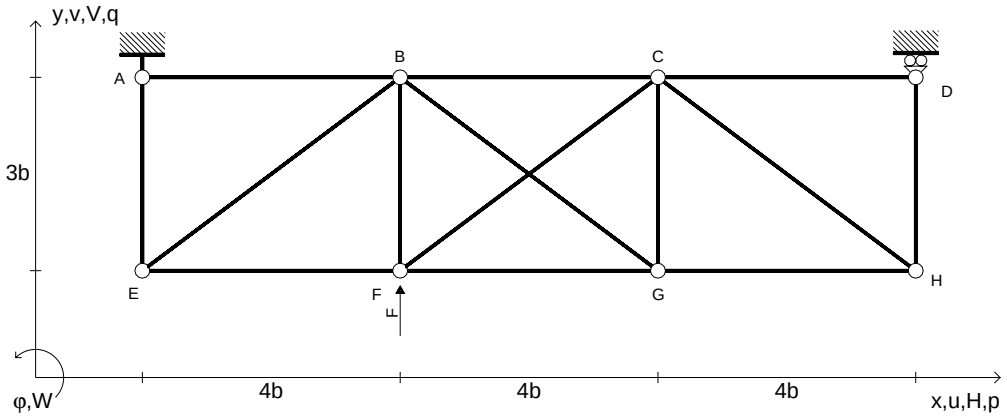
$N_{CH} = 10/9F$ $N_{EF} = -4/9F$ $N_{FG} = -2/3F$ $N_{GH} = -8/9F$ $N_{EA} = -1/3F$ $N_{FB} = -1/6F$

$N_{CG} = 1/6F$ $N_{DH} = -2/3F$

SPOSTAMENTI ASSOLUTI

$u_F = 107/27(Fb/EA)$

$v_F = 2233/162(Fb/EA)$

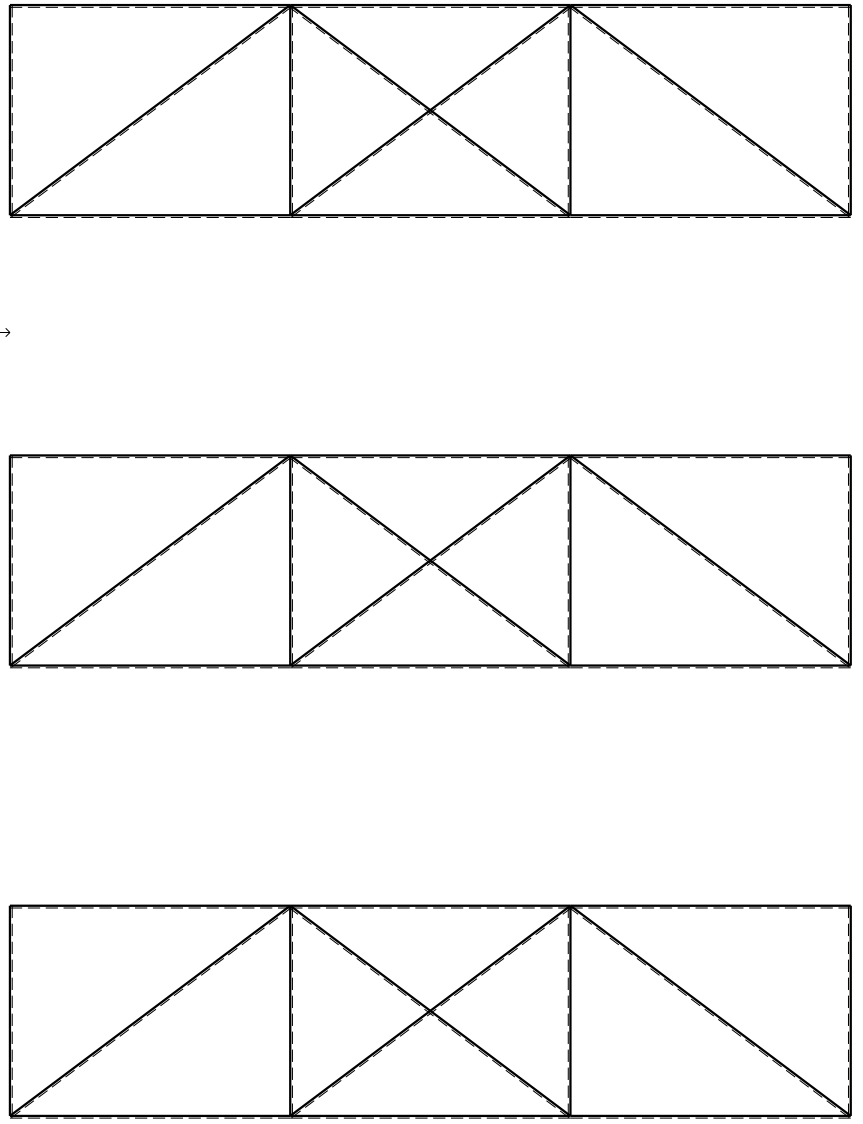


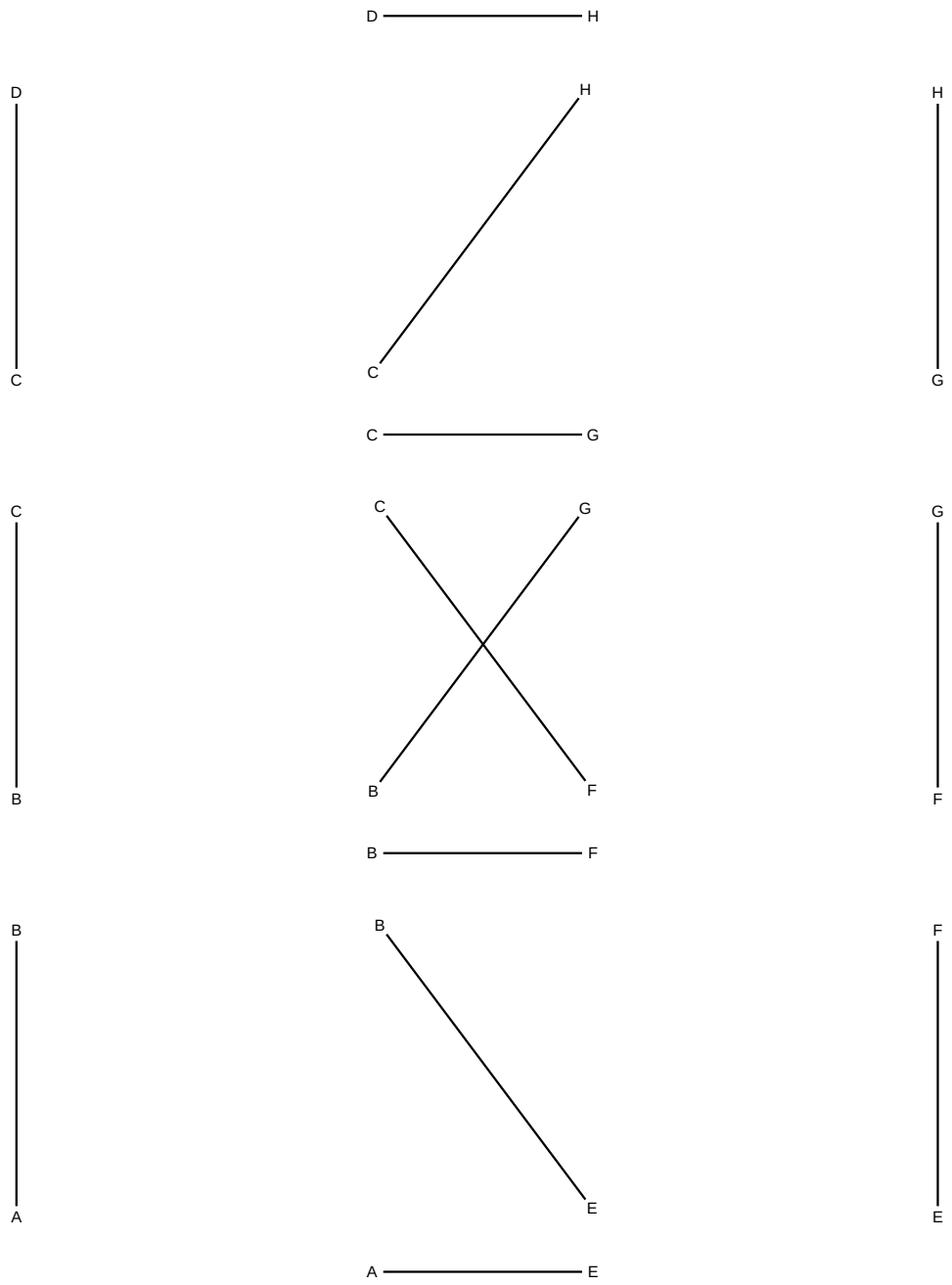
$V_F = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

$u_C = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

$v_C = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo C
Calcolare lo spostamento verticale del nodo C





REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} =

N_{BG} = N_{CH} = N_{EF} = N_{FG} = N_{GH} =

N_{EA} = N_{FB} = N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_C =

v_C =

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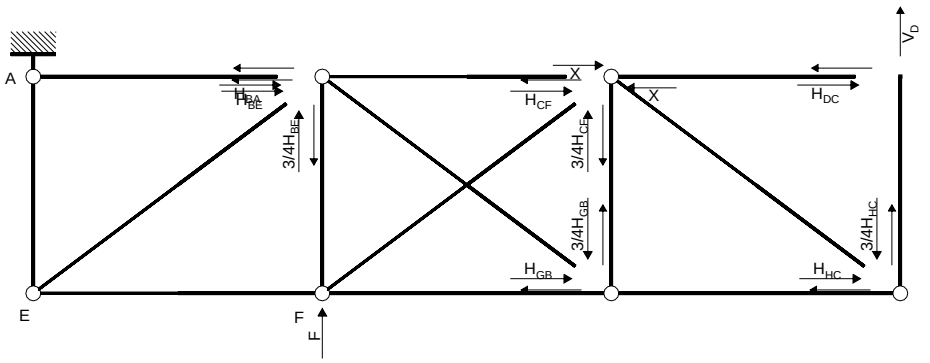


EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -4Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db + 3H_{BA}b = -4Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db + 3H_{GB}b = -3Xb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA}b + 3H_{BE}b - 3H_{GB}b = 3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db + 3H_{DC}b + 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC}b + 3H_{CF}b - 3H_{HC}b = -3Xb$

Rotazione intorno a H: aste HD

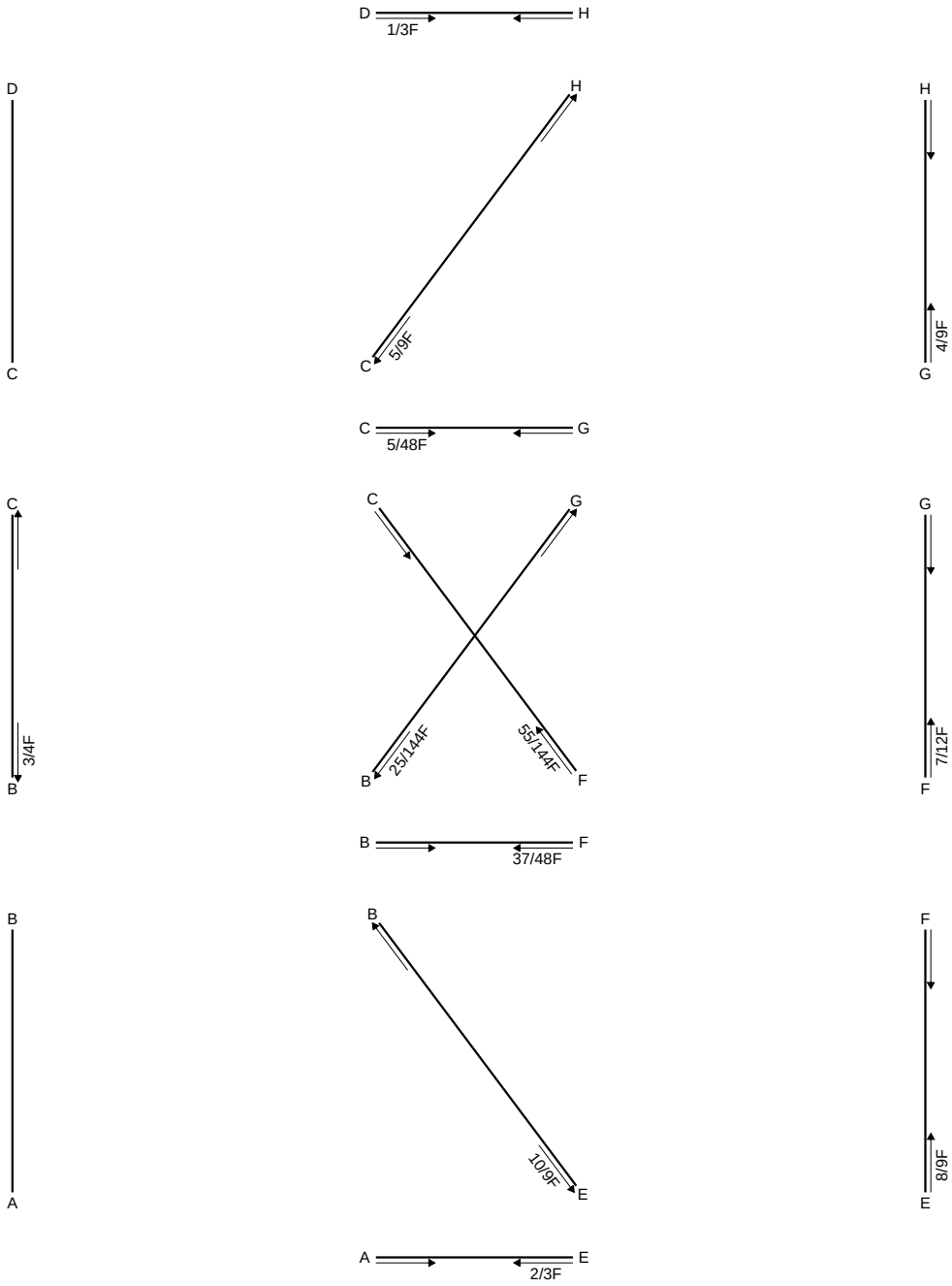
$3H_{DC}b = 0$

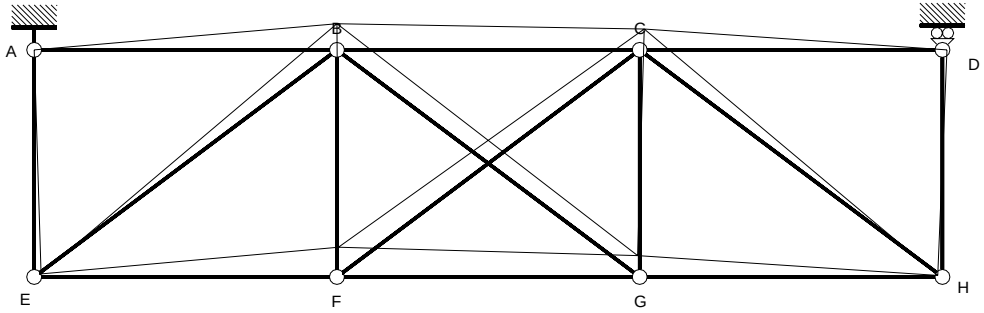
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-4
φ_{EF}	12	3	0	0	0	0	0		0	-4
φ_{FG}	8	0	0	0	0	3	0		-3	0
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

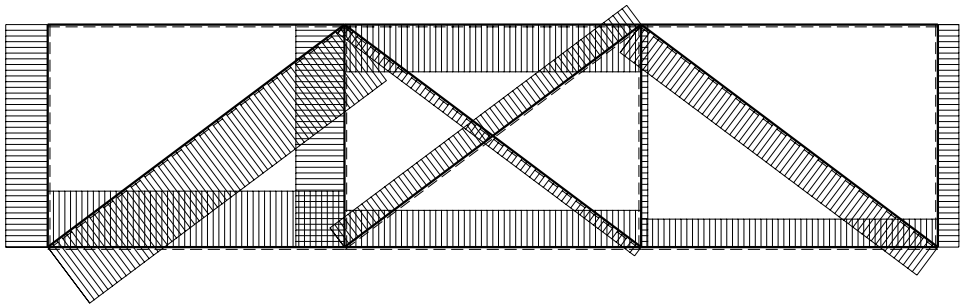
Soluzione del sistema

		Xb	Fb
V_Db		0	-1/3
$H_{BA}b$		0	0
$H_{GB}b$		-1	8/9
$H_{BE}b$	=	0	8/9
$H_{DC}b$		0	0
$H_{CF}b$		-1	4/9
$H_{HC}b$		0	4/9





⟝ 50 Fb/EA



⟵ + ⟶ ⟝ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -2/3F$ $V_D = -1/3F$

$N_{AB} = 0$ $N_{BC} = 3/4F$ $N_{CD} = 0$ $N_{EB} = 10/9F$ $N_{FC} = -55/144F$

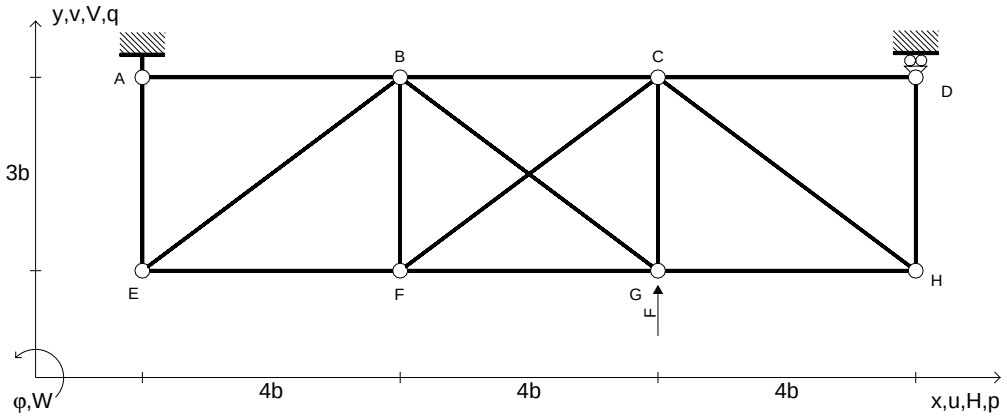
$N_{BG} = 25/144F$ $N_{CH} = 5/9F$ $N_{EF} = -8/9F$ $N_{FG} = -7/12F$ $N_{GH} = -4/9F$

$N_{EA} = -2/3F$ $N_{FB} = -37/48F$ $N_{CG} = -5/48F$ $N_{DH} = -1/3F$

SPOSTAMENTI ASSOLUTI

$u_C = 3(Fb/EA)$

$v_C = 2233/162(Fb/EA)$

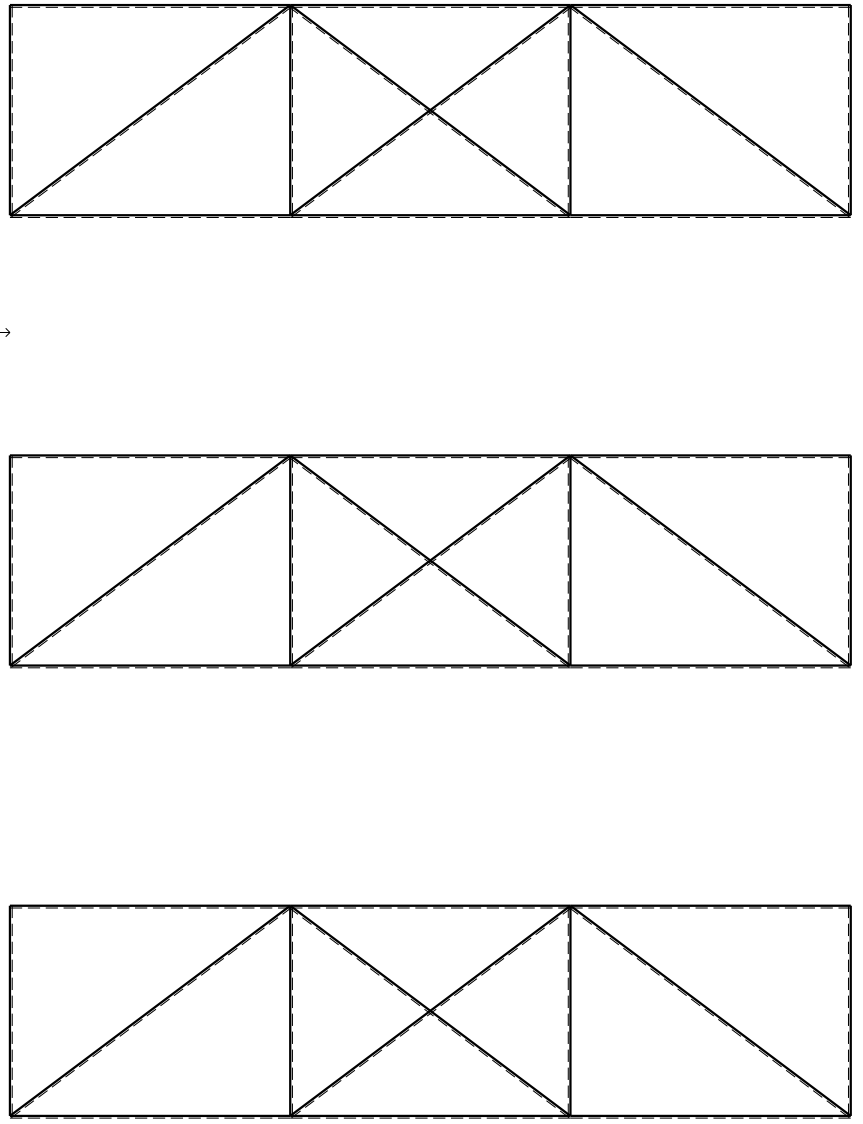


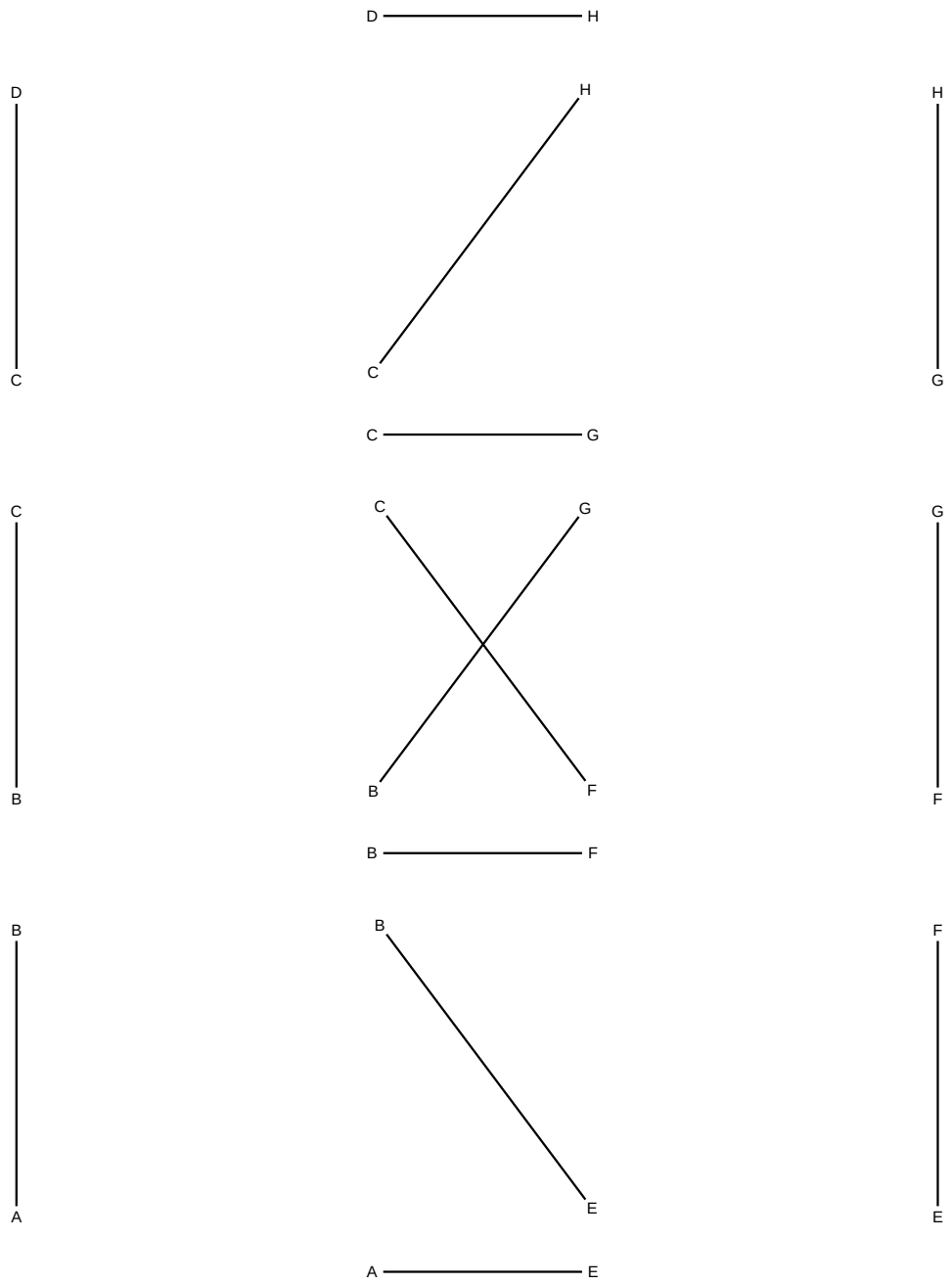
$V_G = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

$u_B = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

$v_B = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo B
Calcolare lo spostamento verticale del nodo B





REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} =

N_{BG} = N_{CH} = N_{EF} = N_{FG} = N_{GH} =

N_{EA} = N_{FB} = N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_B =

v_B =

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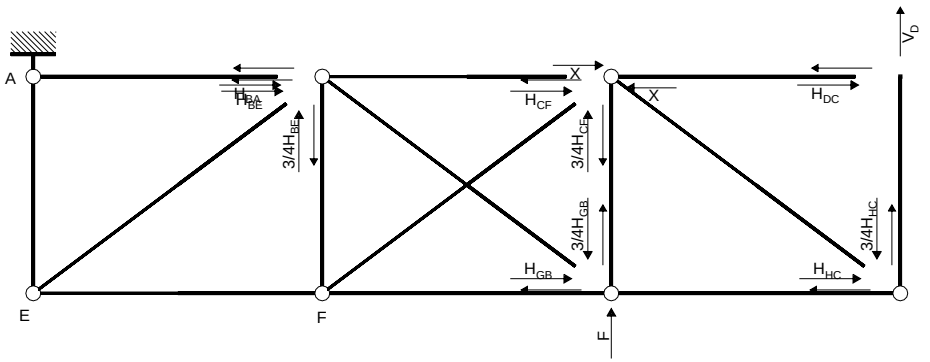


EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db + 3H_{BA}b = -8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db + 3H_{GB}b = -3Xb - 4Fb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA}b + 3H_{BE}b - 3H_{GB}b = 3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db + 3H_{DC}b + 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC}b + 3H_{CF}b - 3H_{HC}b = -3Xb$

Rotazione intorno a H: aste HD

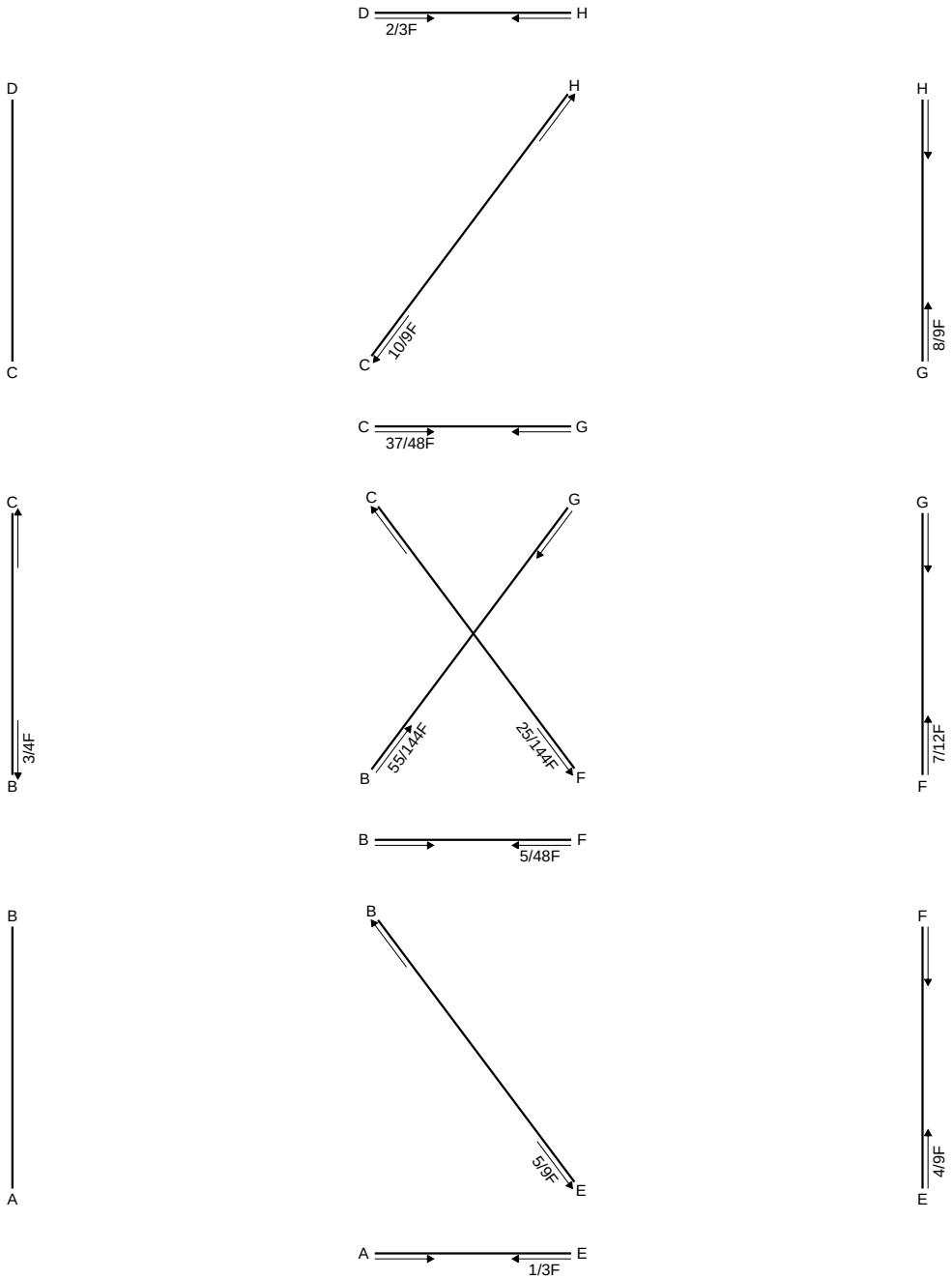
$3H_{DC}b = 0$

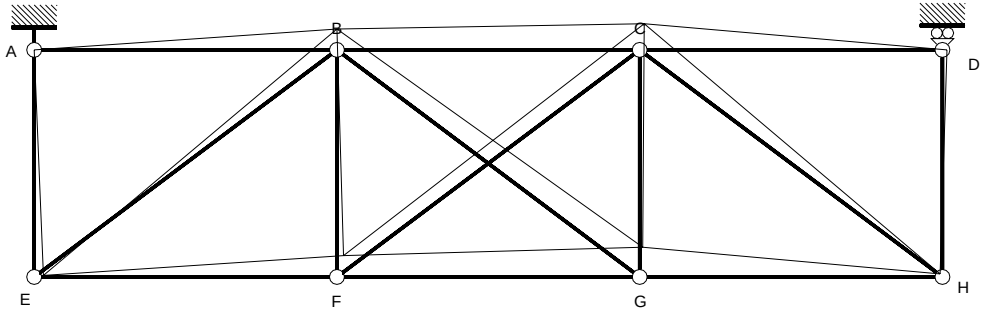
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-8
φ_{EF}	12	3	0	0	0	0	0		0	-8
φ_{FG}	8	0	0	0	0	3	0		-3	-4
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

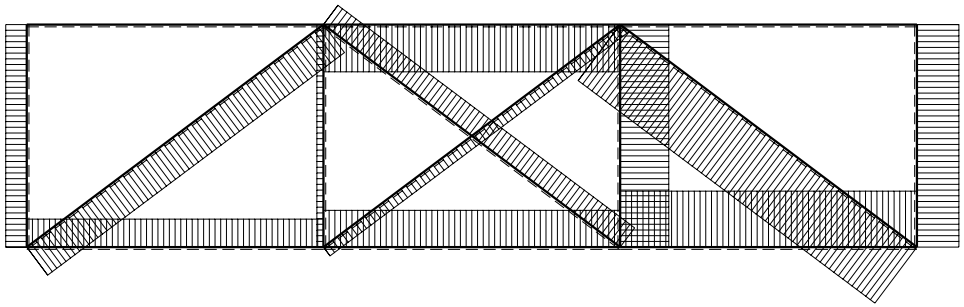
Soluzione del sistema

	Xb	Fb
V_Db	0	-2/3
$H_{BA}b$	0	0
$H_{GB}b$	-1	4/9
$H_{BE}b$ =	0	4/9
$H_{DC}b$	0	0
$H_{CF}b$	-1	8/9
$H_{HC}b$	0	8/9





50 Fb/EA



1.2 F

REAZIONI

$H_A = 0$ $V_A = -1/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = 3/4F$ $N_{CD} = 0$ $N_{EB} = 5/9F$ $N_{FC} = 25/144F$

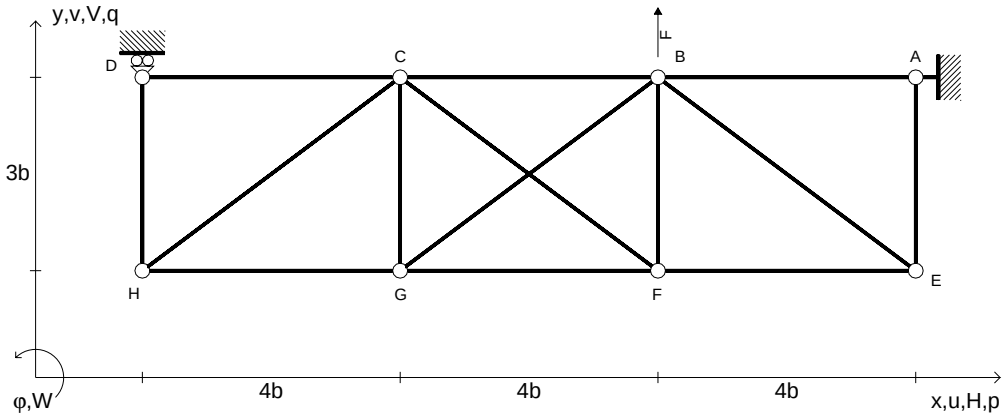
$N_{BG} = -55/144F$ $N_{CH} = 10/9F$ $N_{EF} = -4/9F$ $N_{FG} = -7/12F$ $N_{GH} = -8/9F$

$N_{EA} = -1/3F$ $N_{FB} = -5/48F$ $N_{CG} = -37/48F$ $N_{DH} = -2/3F$

SPOSTAMENTI ASSOLUTI

$u_B = 0$

$v_B = 2233/162(Fb/EA)$

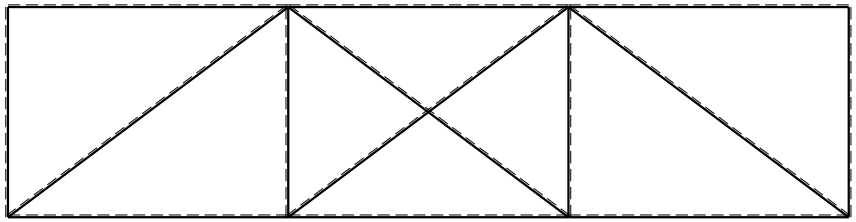


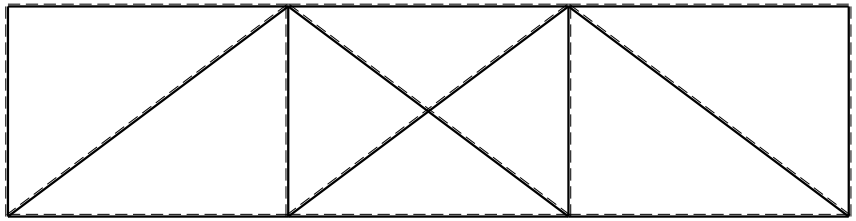
$V_B = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

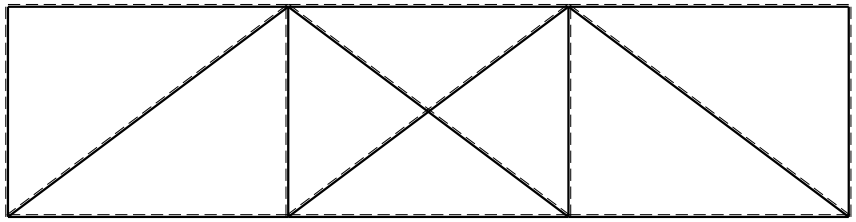
$u_G = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

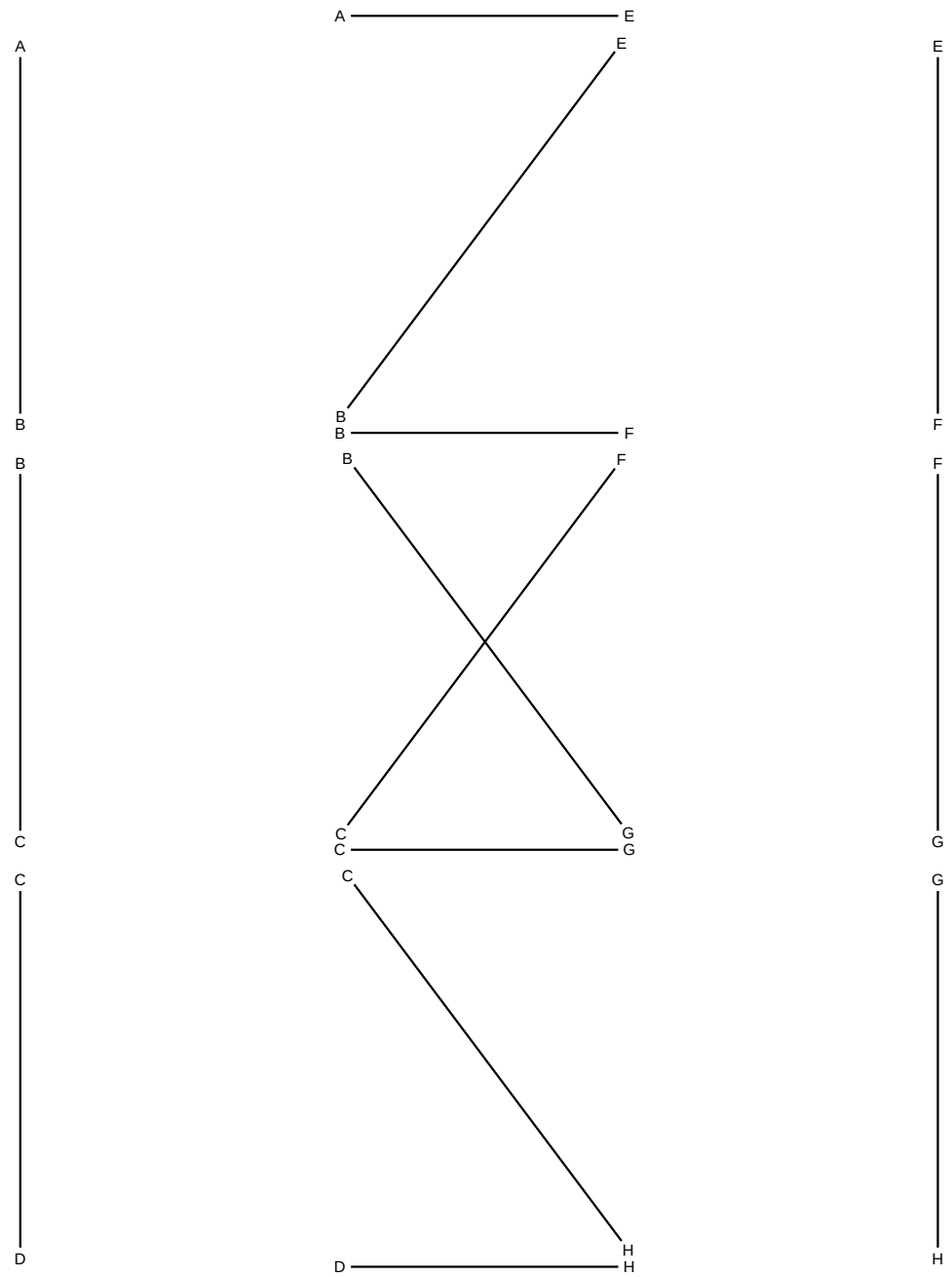
$v_G = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo G
Calcolare lo spostamento verticale del nodo G









REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

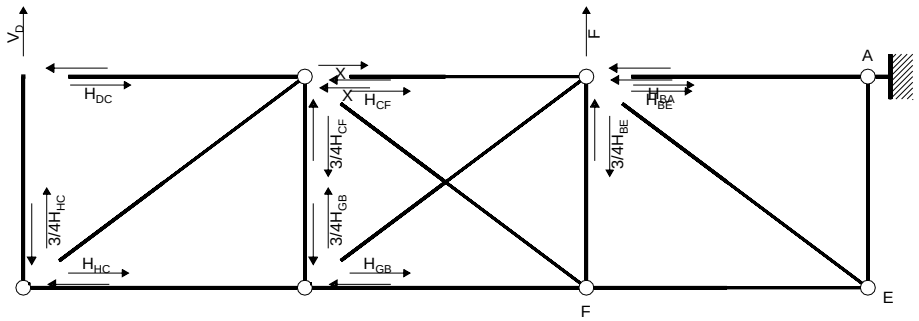
N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_G =

v_G =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b = 4Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b + 3H_{BA} b = 4Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$-8V_D b + 3H_{GB} b = -3Xb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA} b + 3H_{BE} b - 3H_{GB} b = 3Xb$

Rotazione intorno a G: aste GH HD

$-4V_D b + 3H_{DC} b + 3H_{HC} b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC} b + 3H_{CF} b - 3H_{HC} b = -3Xb$

Rotazione intorno a H: aste HD

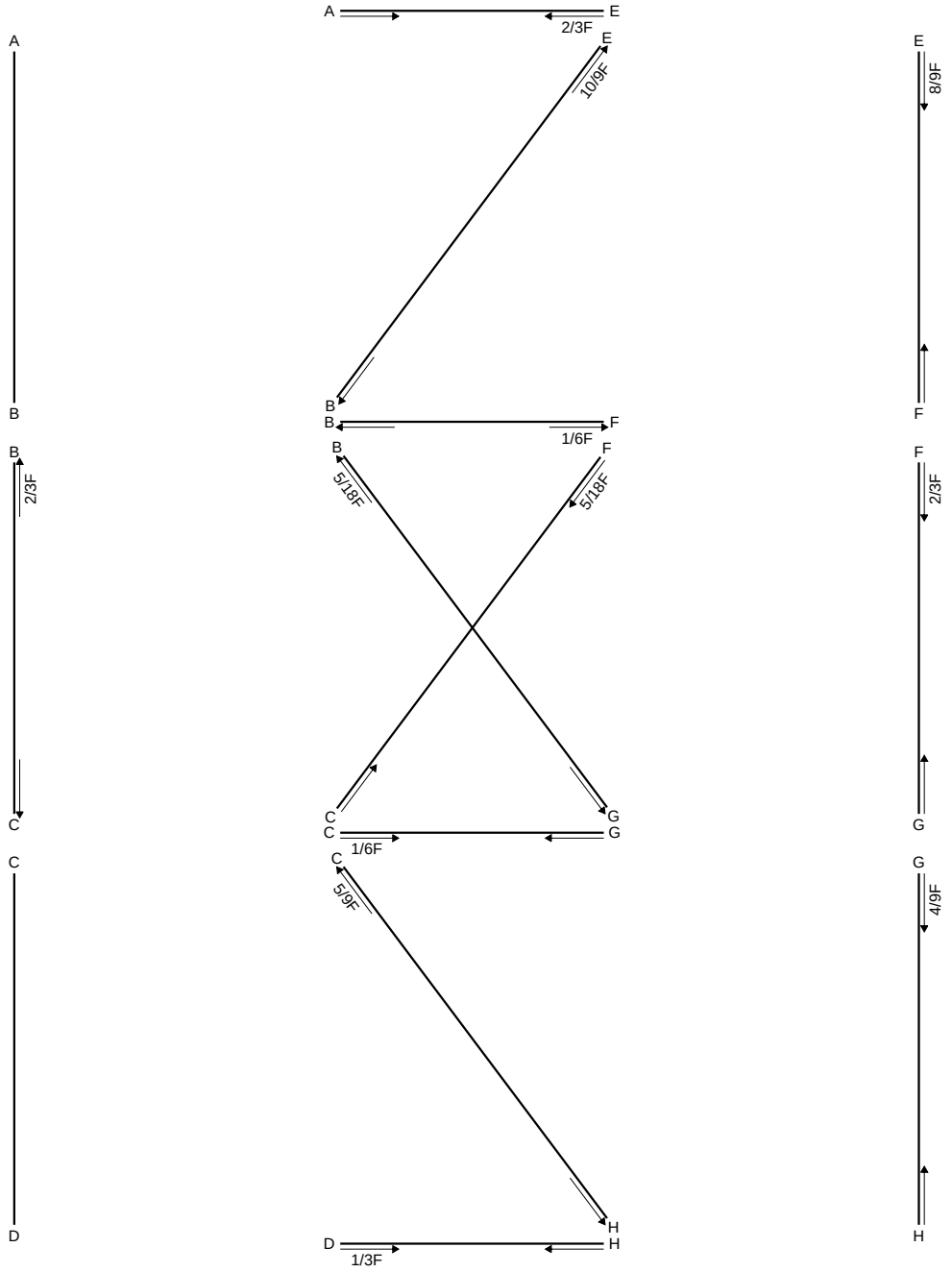
$3H_{DC} b = 0$

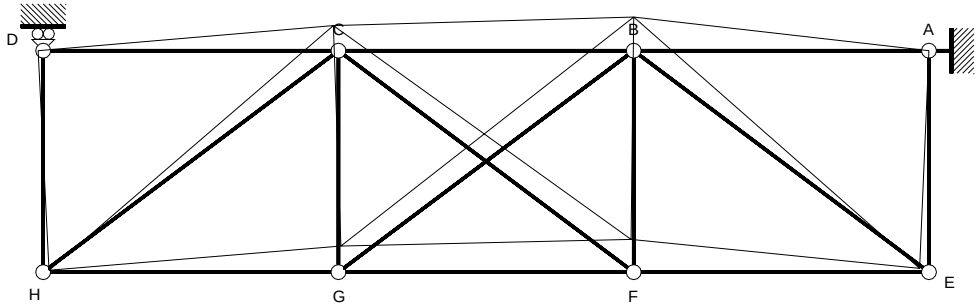
Matrice di equilibrio

	$V_D b$	$H_{BA} b$	$H_{DC} b$	$H_{BE} b$	$H_{CF} b$	$H_{GB} b$	$H_{HC} b$		Xb	Fb
φ_{AE}	-12	0	0	0	0	0	0		0	4
φ_{EF}	-12	3	0	0	0	0	0		0	4
φ_{FG}	-8	0	0	0	0	3	0		-3	0
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	-4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

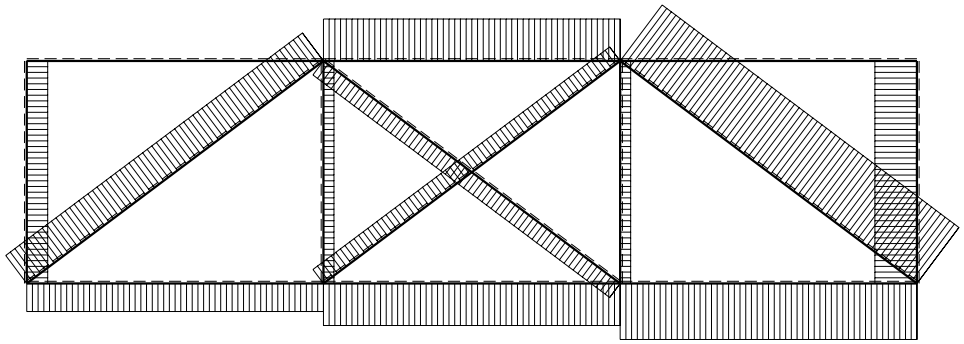
Soluzione del sistema

		Xb	Fb
$V_D b$		0	-1/3
$H_{BA} b$		0	0
$H_{GB} b$		-1	-8/9
$H_{BE} b$	=	0	-8/9
$H_{DC} b$		0	0
$H_{CF} b$		-1	-4/9
$H_{HC} b$		0	-4/9





⟝ 40 Fb/EA



←⊞→ ⟝ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -2/3F$ $V_D = -1/3F$

$N_{AB} = 0$ $N_{BC} = 2/3F$ $N_{CD} = 0$ $N_{EB} = 10/9F$ $N_{FC} = -5/18F$ $N_{BG} = 5/18F$

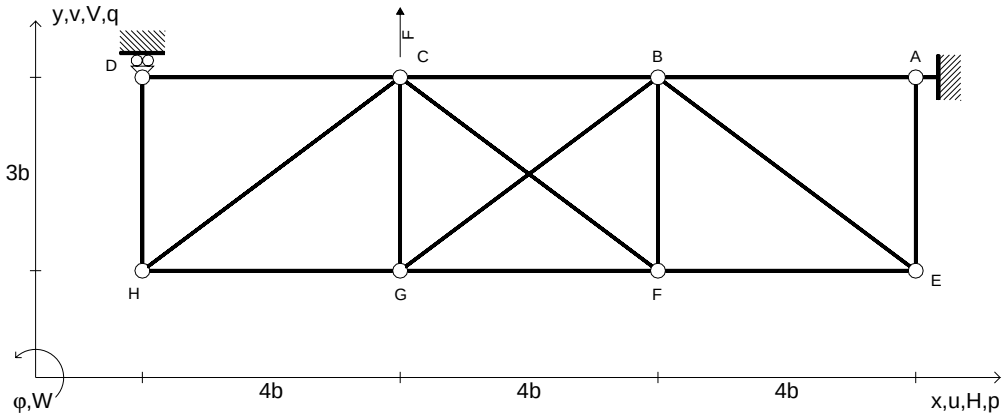
$N_{CH} = 5/9F$ $N_{EF} = -8/9F$ $N_{FG} = -2/3F$ $N_{GH} = -4/9F$ $N_{EA} = -2/3F$ $N_{FB} = 1/6F$

$N_{CG} = -1/6F$ $N_{DH} = -1/3F$

SPOSTAMENTI ASSOLUTI

$u_G = 35/27(Fb/EA)$

$v_G = 2233/162(Fb/EA)$

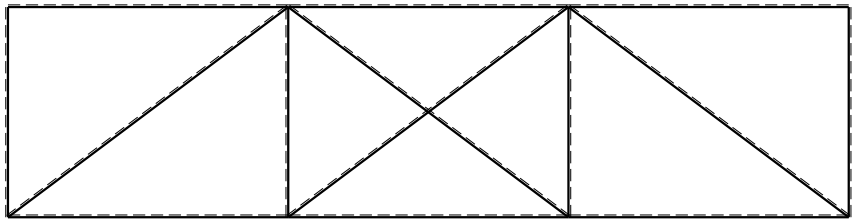


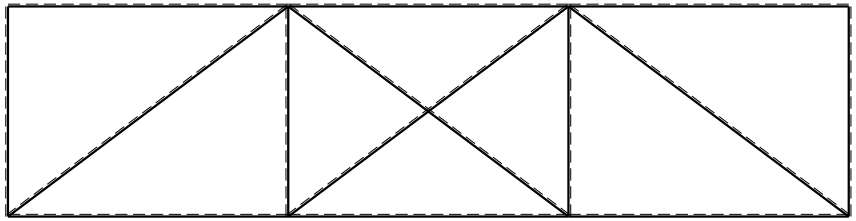
$V_C = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

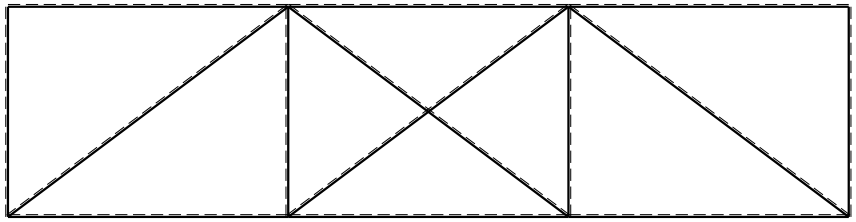
$u_F = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

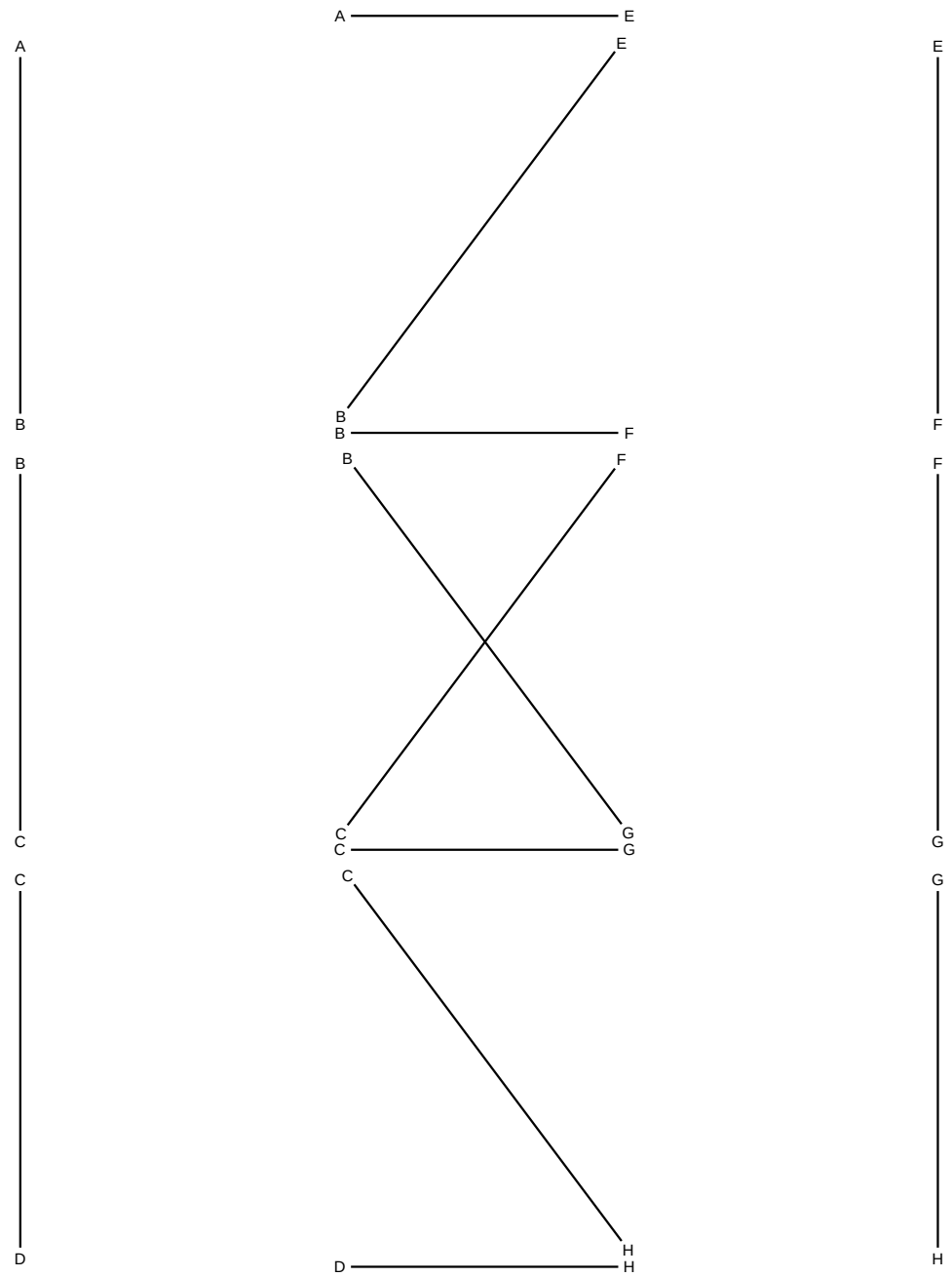
$v_F = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo F
Calcolare lo spostamento verticale del nodo F









REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

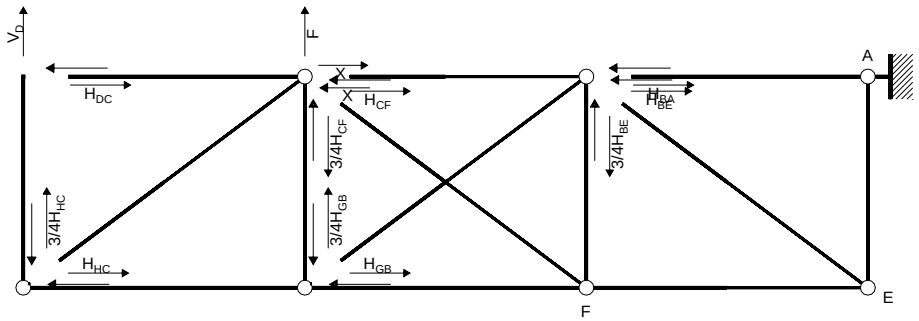
N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_F =

v_F =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b = 8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b + 3H_{BA} b = 8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$-8V_D b + 3H_{GB} b = -3Xb + 4Fb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA} b + 3H_{BE} b - 3H_{GB} b = 3Xb$

Rotazione intorno a G: aste GH HD

$-4V_D b + 3H_{DC} b + 3H_{HC} b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC} b + 3H_{CF} b - 3H_{HC} b = -3Xb$

Rotazione intorno a H: aste HD

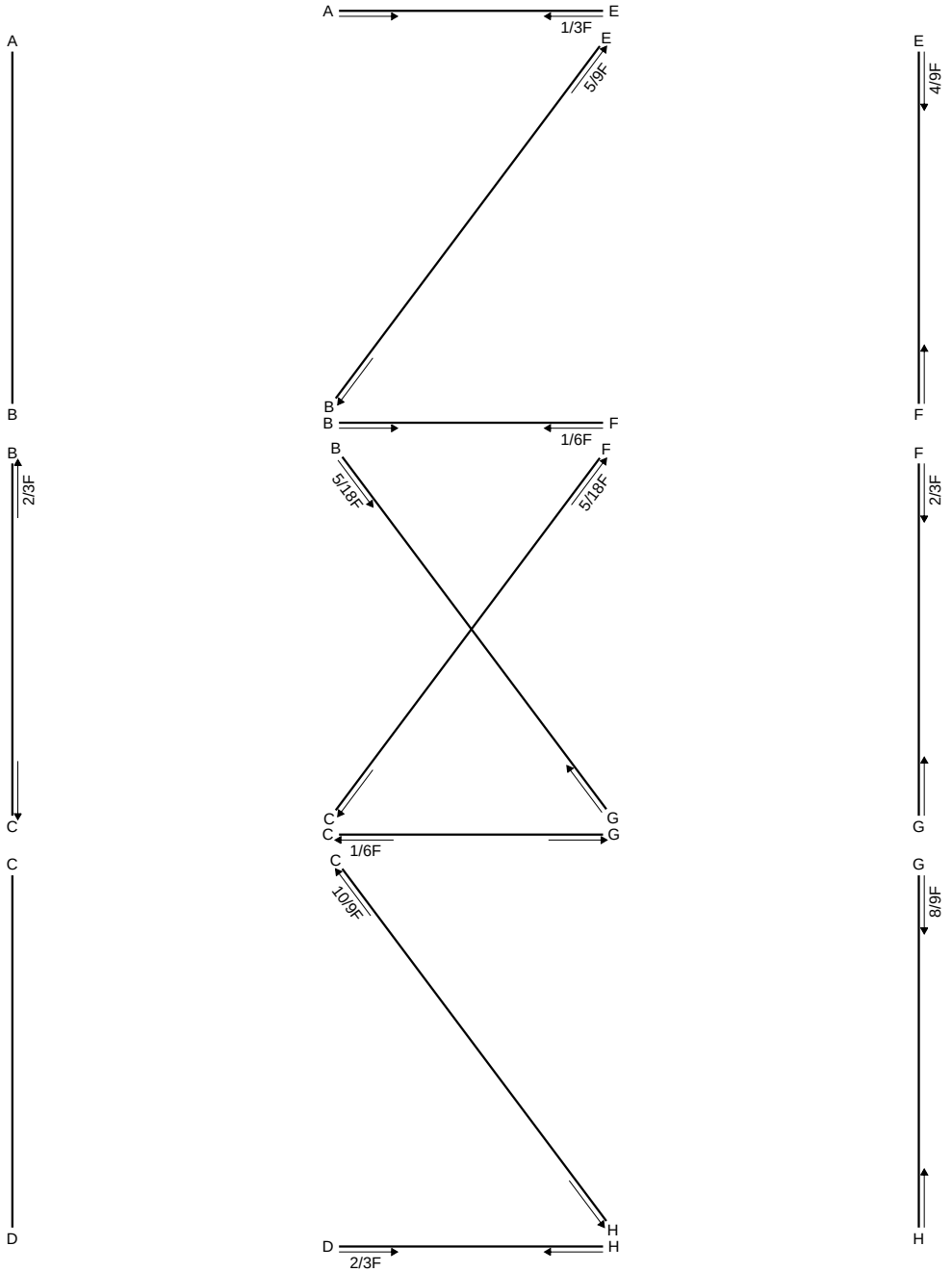
$3H_{DC} b = 0$

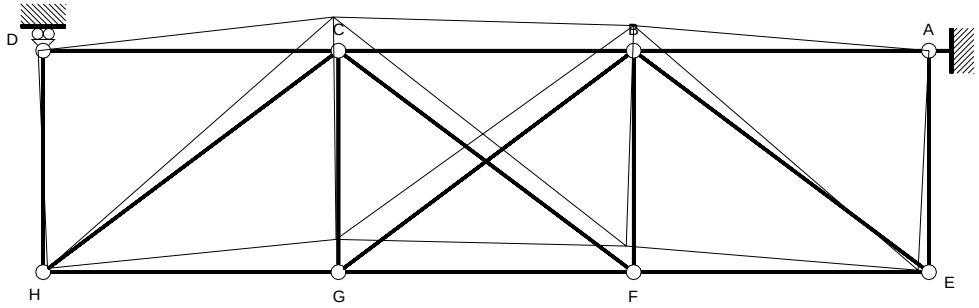
Matrice di equilibrio

	$V_D b$	$H_{BA} b$	$H_{DC} b$	$H_{BE} b$	$H_{CF} b$	$H_{GB} b$	$H_{HC} b$		Xb	Fb
φ_{AE}	-12	0	0	0	0	0	0		0	8
φ_{EF}	-12	3	0	0	0	0	0		0	8
φ_{FG}	-8	0	0	0	0	3	0		-3	4
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	-4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

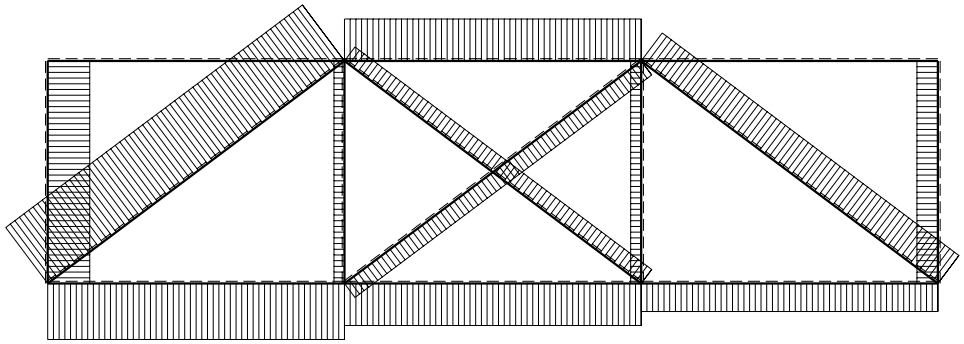
Soluzione del sistema

		Xb	Fb
$V_D b$		0	-2/3
$H_{BA} b$		0	0
$H_{GB} b$		-1	-4/9
$H_{BE} b$	=	0	-4/9
$H_{DC} b$		0	0
$H_{CF} b$		-1	-8/9
$H_{HC} b$		0	-8/9





⟷ 40 Fb/EA



⟷ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -1/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = 2/3F$ $N_{CD} = 0$ $N_{EB} = 5/9F$ $N_{FC} = 5/18F$ $N_{BG} = -5/18F$

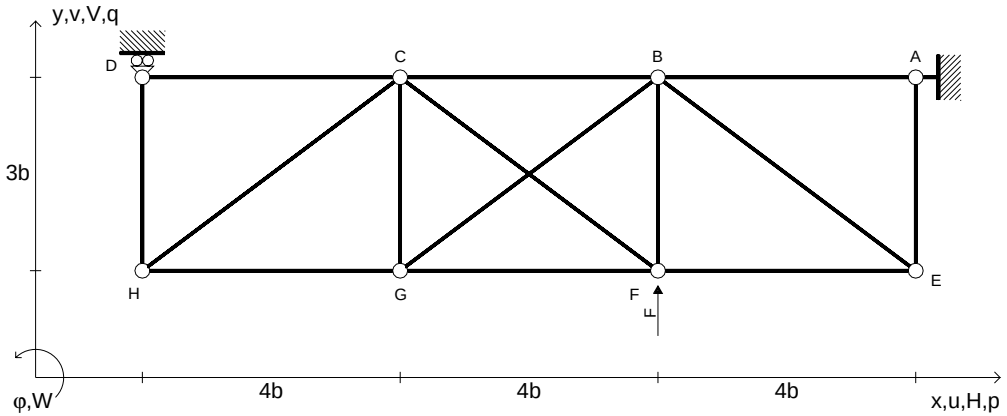
$N_{CH} = 10/9F$ $N_{EF} = -4/9F$ $N_{FG} = -2/3F$ $N_{GH} = -8/9F$ $N_{EA} = -1/3F$ $N_{FB} = -1/6F$

$N_{CG} = 1/6F$ $N_{DH} = -2/3F$

SPOSTAMENTI ASSOLUTI

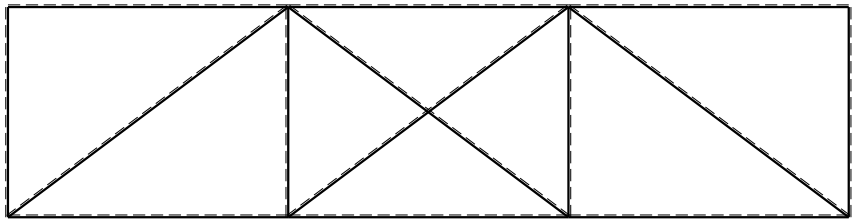
$u_F = -107/27(Fb/EA)$

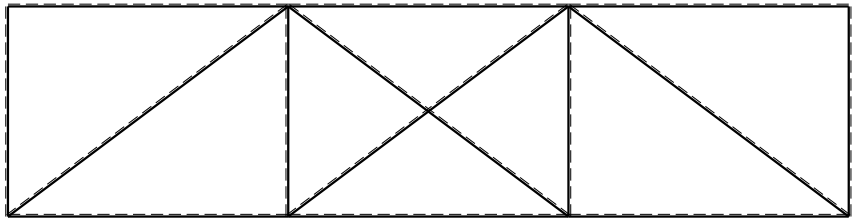
$v_F = 2233/162(Fb/EA)$

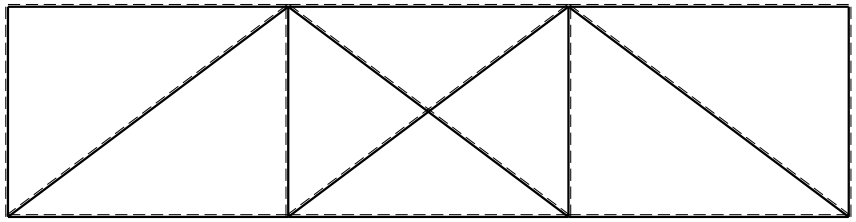


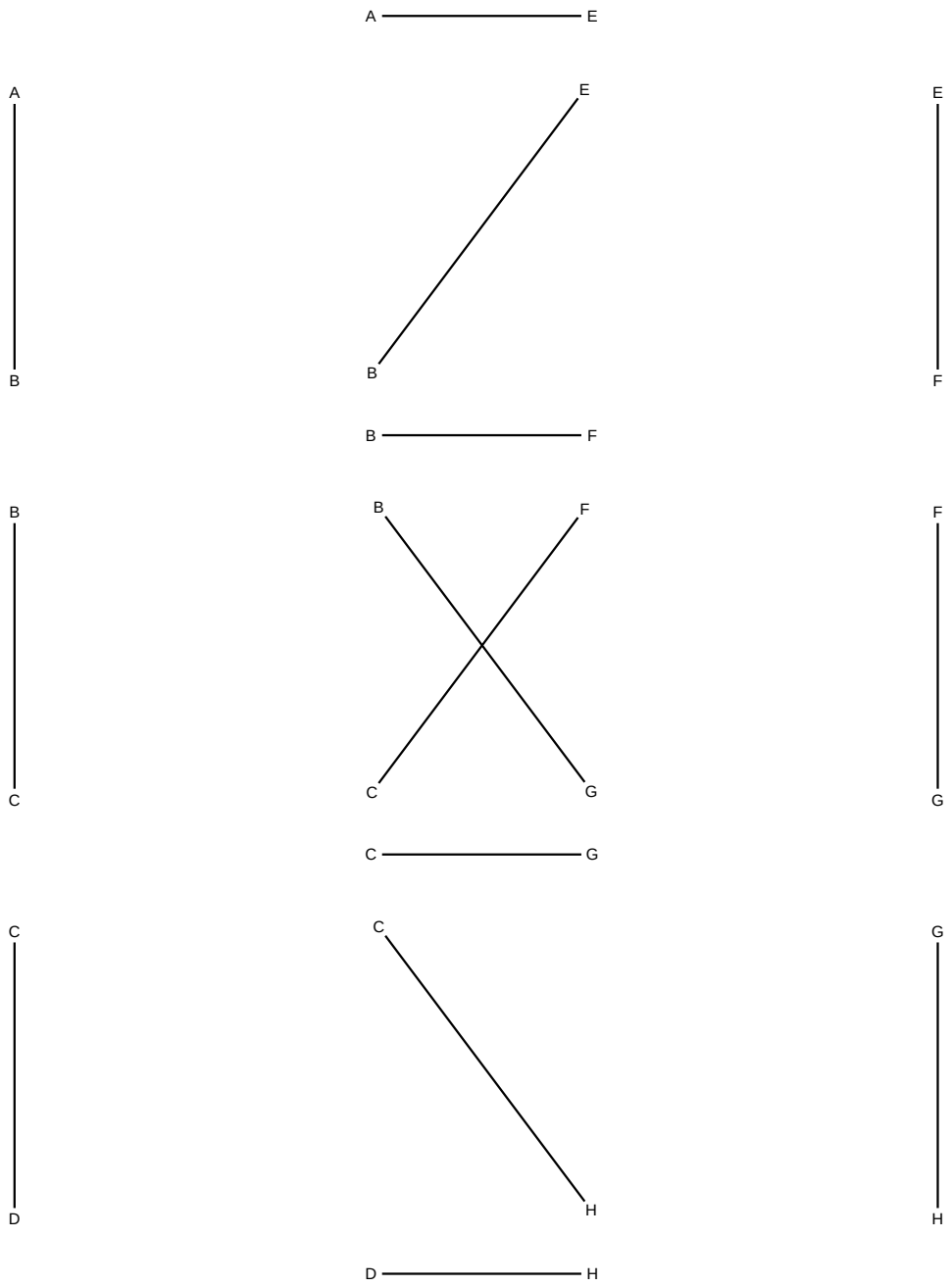
$V_F = F$	$EA_{AB} = EA$	$EA_{EB} = EA$	$EA_{CH} = EA$	$EA_{GH} = EA$	$EA_{CG} = EA$
$u_C = ?$	$EA_{BC} = EA$	$EA_{FC} = EA$	$EA_{EF} = EA$	$EA_{EA} = EA$	$EA_{DH} = EA$
$v_C = ?$	$EA_{CD} = EA$	$EA_{BG} = EA$	$EA_{FG} = EA$	$EA_{FB} = EA$	

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo C
Calcolare lo spostamento verticale del nodo C









REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} =

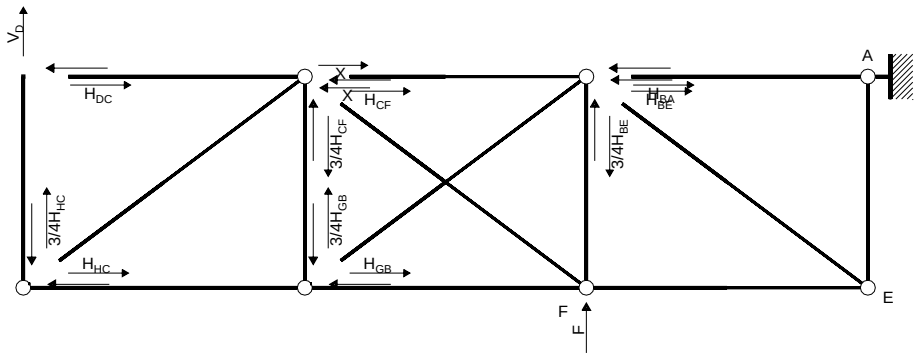
N_{BG} = N_{CH} = N_{EF} = N_{FG} = N_{GH} =

N_{EA} = N_{FB} = N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_C =

v_C =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b = 4Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$-12V_D b + 3H_{BA} b = 4Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$-8V_D b + 3H_{GB} b = -3Xb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA} b + 3H_{BE} b - 3H_{GB} b = 3Xb$

Rotazione intorno a G: aste GH HD

$-4V_D b + 3H_{DC} b + 3H_{HC} b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC} b + 3H_{CF} b - 3H_{HC} b = -3Xb$

Rotazione intorno a H: aste HD

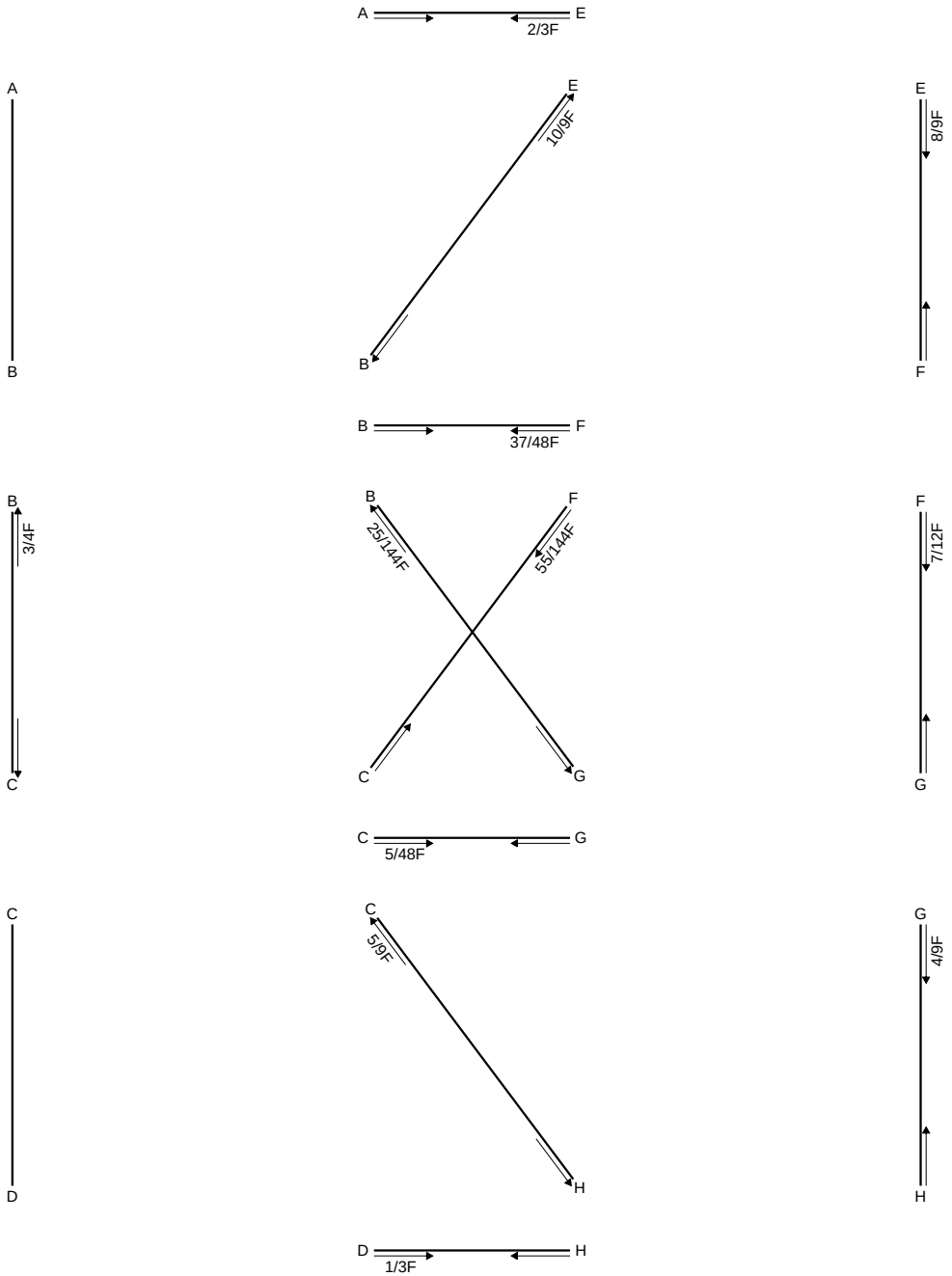
$3H_{DC} b = 0$

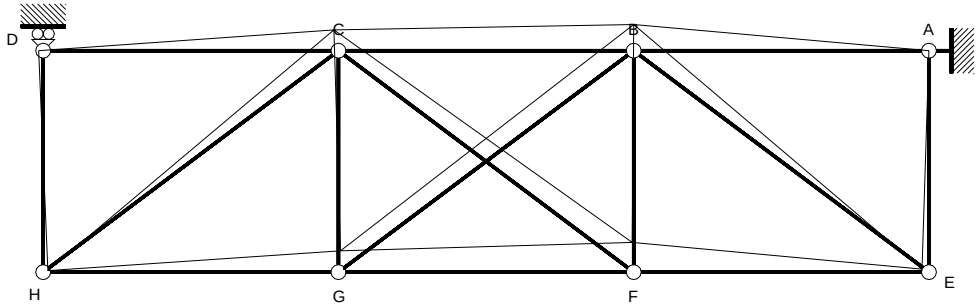
Matrice di equilibrio

	$V_D b$	$H_{BA} b$	$H_{DC} b$	$H_{BE} b$	$H_{CF} b$	$H_{GB} b$	$H_{HC} b$		Xb	Fb
φ_{AE}	-12	0	0	0	0	0	0		0	4
φ_{EF}	-12	3	0	0	0	0	0		0	4
φ_{FG}	-8	0	0	0	0	3	0		-3	0
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	-4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

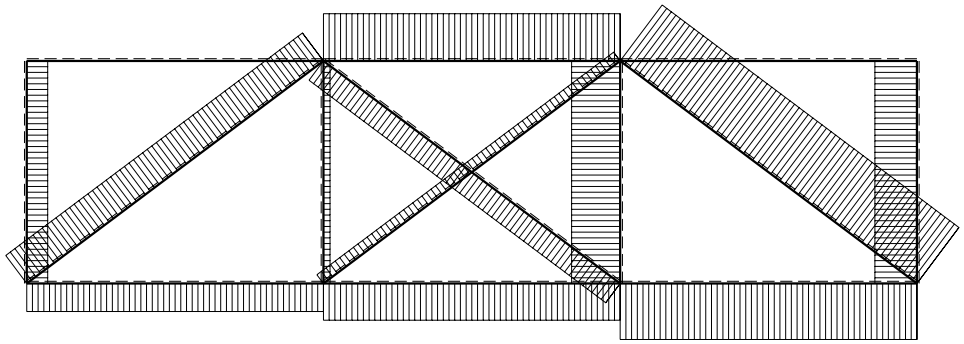
Soluzione del sistema

		Xb	Fb
$V_D b$		0	-1/3
$H_{BA} b$		0	0
$H_{GB} b$		-1	-8/9
$H_{BE} b$	=	0	-8/9
$H_{DC} b$		0	0
$H_{CF} b$		-1	-4/9
$H_{HC} b$		0	-4/9





⟝ 50 Fb/EA



⟵ + ⟶ ⟝ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -2/3F$ $V_D = -1/3F$

$N_{AB} = 0$ $N_{BC} = 3/4F$ $N_{CD} = 0$ $N_{EB} = 10/9F$ $N_{FC} = -55/144F$

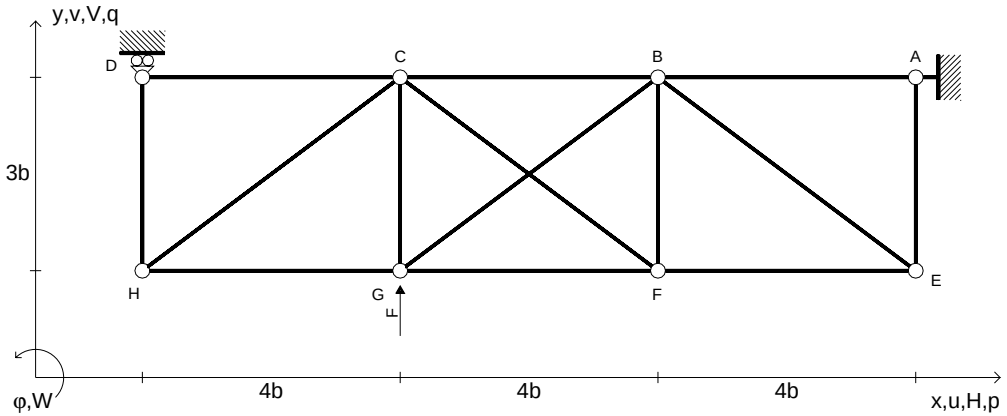
$N_{BG} = 25/144F$ $N_{CH} = 5/9F$ $N_{EF} = -8/9F$ $N_{FG} = -7/12F$ $N_{GH} = -4/9F$

$N_{EA} = -2/3F$ $N_{FB} = -37/48F$ $N_{CG} = -5/48F$ $N_{DH} = -1/3F$

SPOSTAMENTI ASSOLUTI

$u_C = -3(Fb/EA)$

$v_C = 2233/162(Fb/EA)$

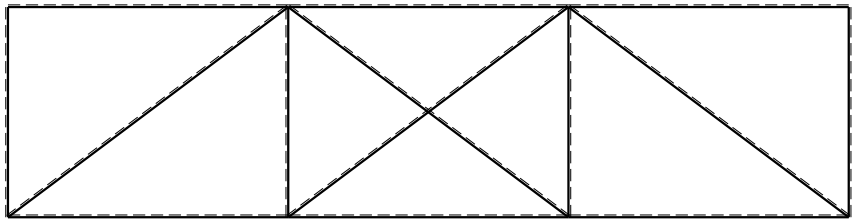


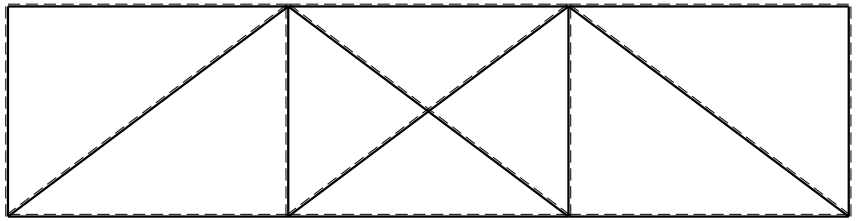
$V_G = F$ $EA_{AB} = EA$ $EA_{EB} = EA$ $EA_{CH} = EA$ $EA_{GH} = EA$ $EA_{CG} = EA$

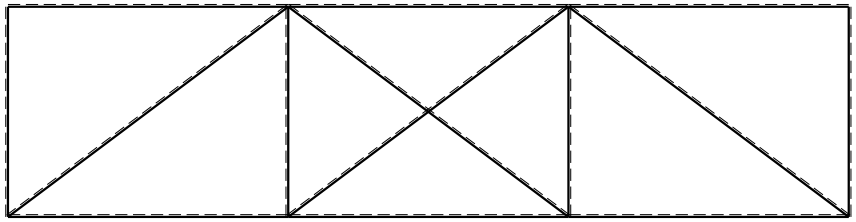
$u_B = ?$ $EA_{BC} = EA$ $EA_{FC} = EA$ $EA_{EF} = EA$ $EA_{EA} = EA$ $EA_{DH} = EA$

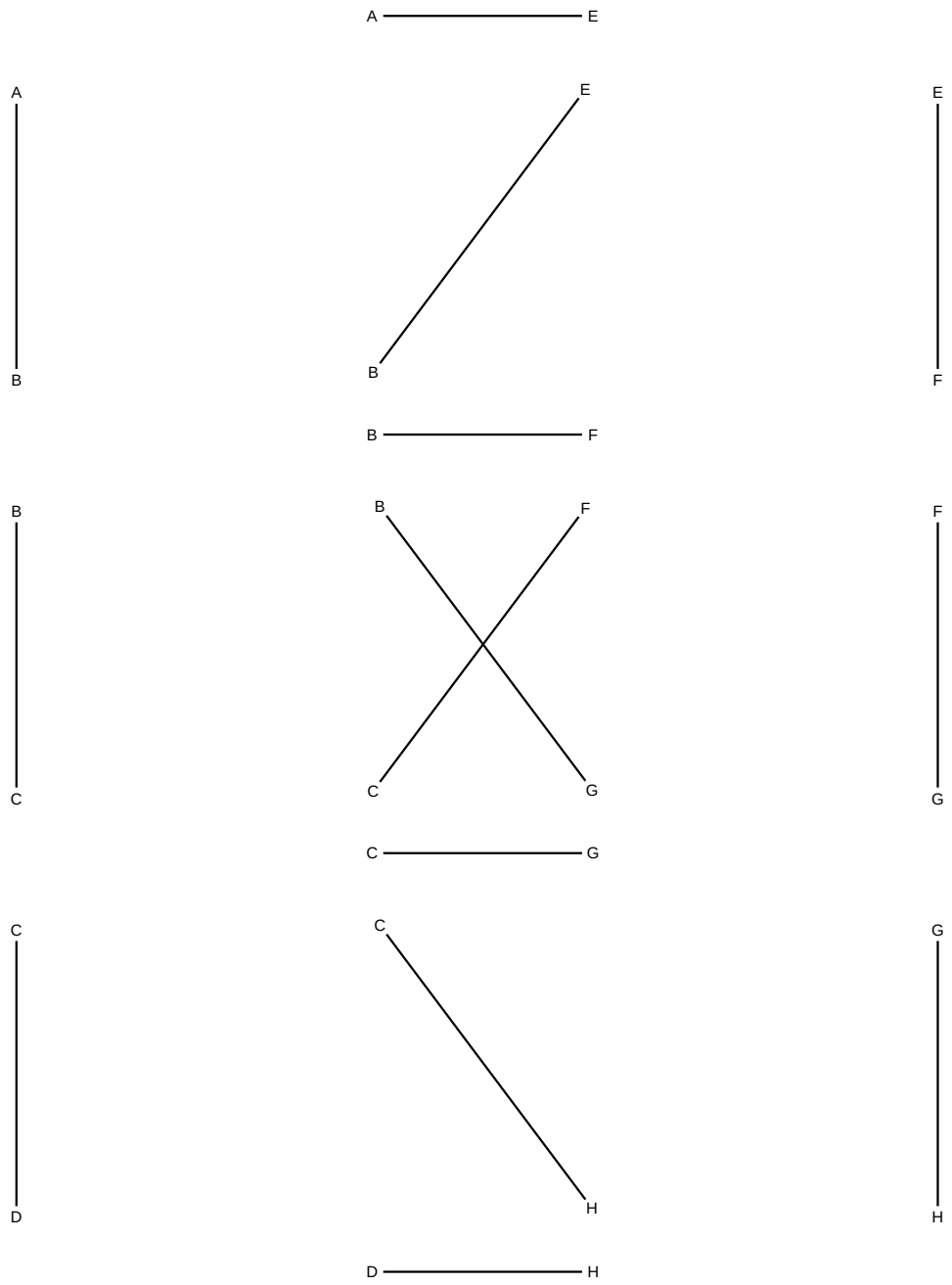
$v_B = ?$ $EA_{CD} = EA$ $EA_{BG} = EA$ $EA_{FG} = EA$ $EA_{FB} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo B
Calcolare lo spostamento verticale del nodo B









REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} =

N_{BG} = N_{CH} = N_{EF} = N_{FG} = N_{GH} =

N_{EA} = N_{FB} = N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_B =

v_B =

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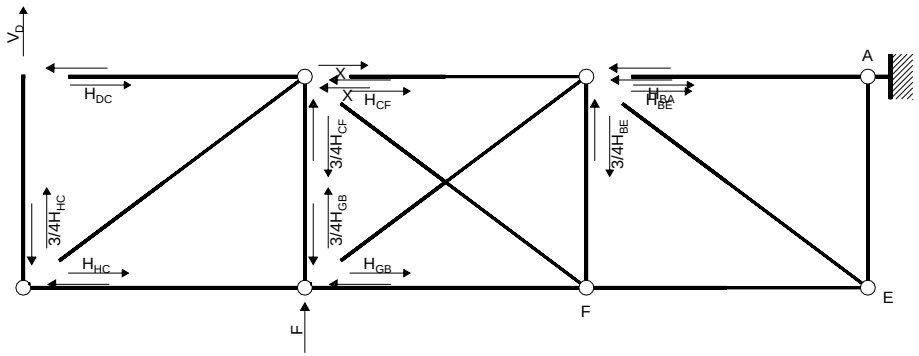


EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$-12V_Db = 8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$-12V_Db + 3H_{BA}b = 8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$-8V_Db + 3H_{GB}b = -3Xb + 4Fb$

Rotazione intorno a F: aste FB BC BG

$3H_{BA}b + 3H_{BE}b - 3H_{GB}b = 3Xb$

Rotazione intorno a G: aste GH HD

$-4V_Db + 3H_{DC}b + 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$-3H_{DC}b + 3H_{CF}b - 3H_{HC}b = -3Xb$

Rotazione intorno a H: aste HD

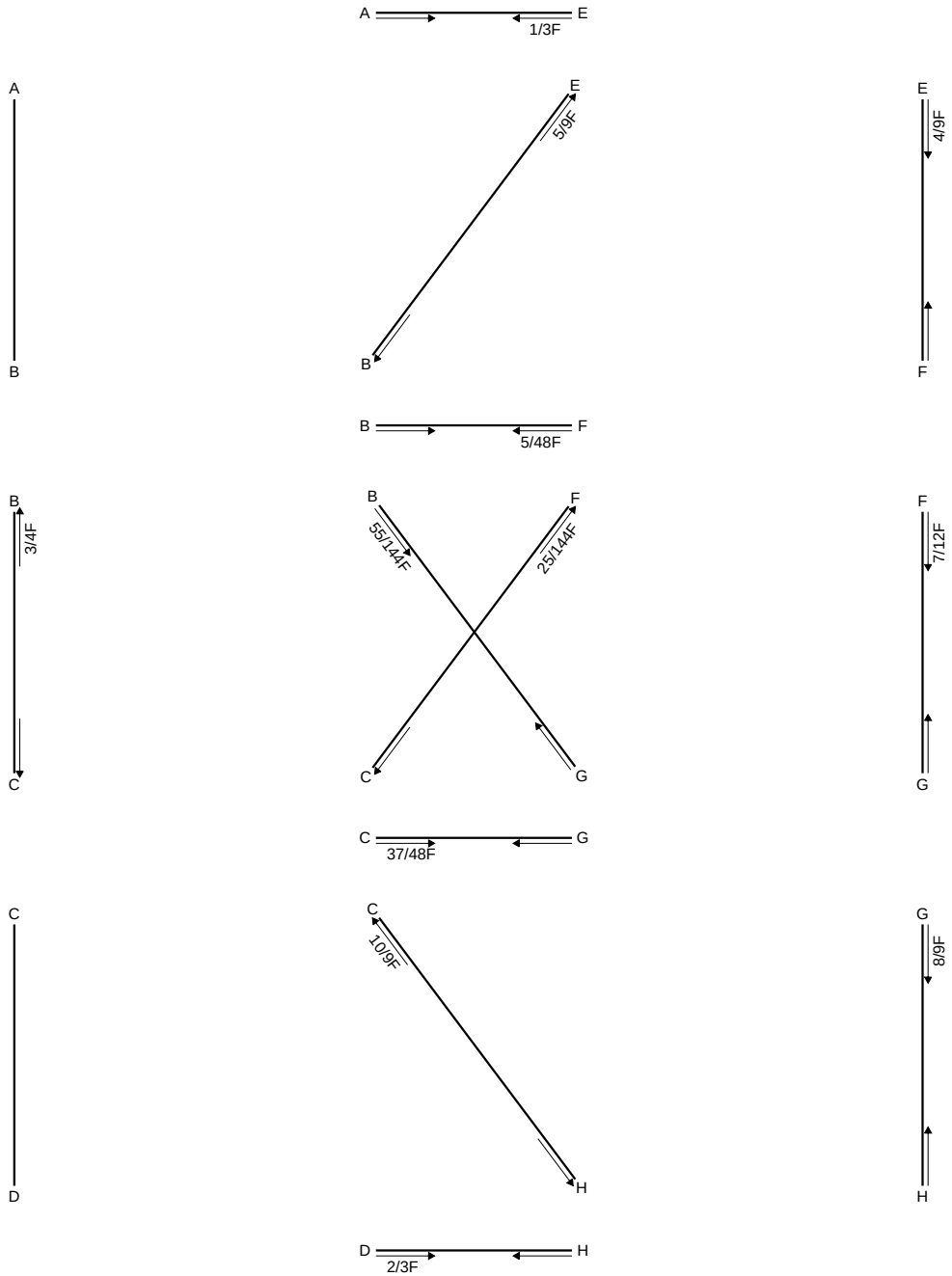
$3H_{DC}b = 0$

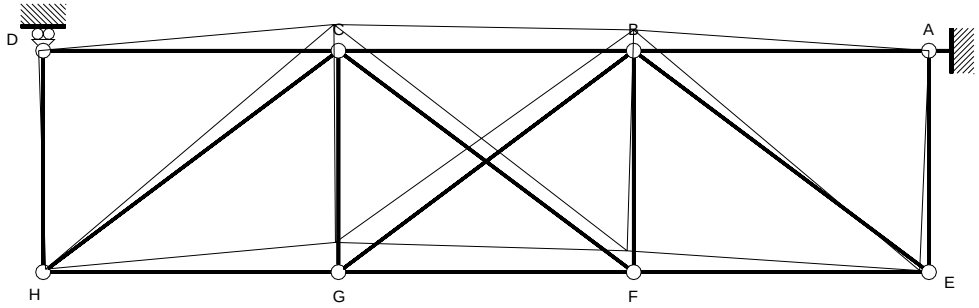
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	-12	0	0	0	0	0	0		0	8
φ_{EF}	-12	3	0	0	0	0	0		0	8
φ_{FG}	-8	0	0	0	0	3	0		-3	4
φ_{FB}	0	3	0	3	0	-3	0	=	3	0
φ_{GH}	-4	0	3	0	0	0	3		0	0
φ_{GC}	0	0	-3	0	3	0	-3		-3	0
φ_{HD}	0	0	3	0	0	0	0		0	0

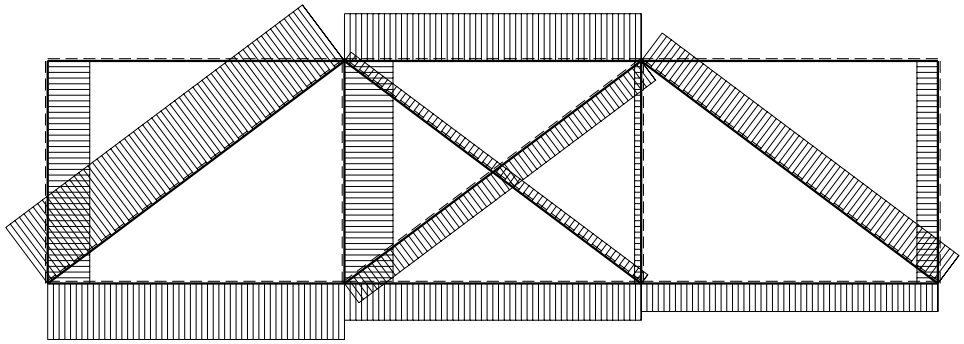
Soluzione del sistema

		Xb	Fb
V_Db		0	-2/3
$H_{BA}b$		0	0
$H_{GB}b$		-1	-4/9
$H_{BE}b$	=	0	-4/9
$H_{DC}b$		0	0
$H_{CF}b$		-1	-8/9
$H_{HC}b$		0	-8/9





⟝ 50 Fb/EA



⟵ + ⟶ ⟝ 1.2 F

REAZIONI

$H_A = 0$ $V_A = -1/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = 3/4F$ $N_{CD} = 0$ $N_{EB} = 5/9F$ $N_{FC} = 25/144F$

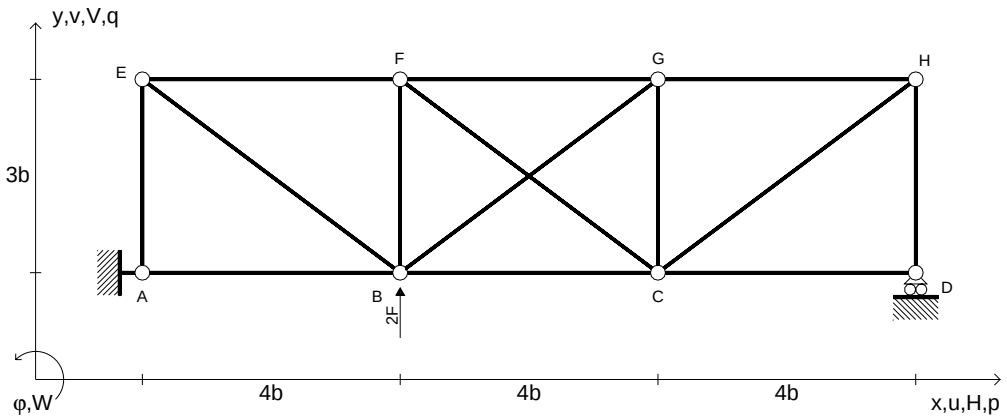
$N_{BG} = -55/144F$ $N_{CH} = 10/9F$ $N_{EF} = -4/9F$ $N_{FG} = -7/12F$ $N_{GH} = -8/9F$

$N_{EA} = -1/3F$ $N_{FB} = -5/48F$ $N_{CG} = -37/48F$ $N_{DH} = -2/3F$

SPOSTAMENTI ASSOLUTI

$u_B = 0$

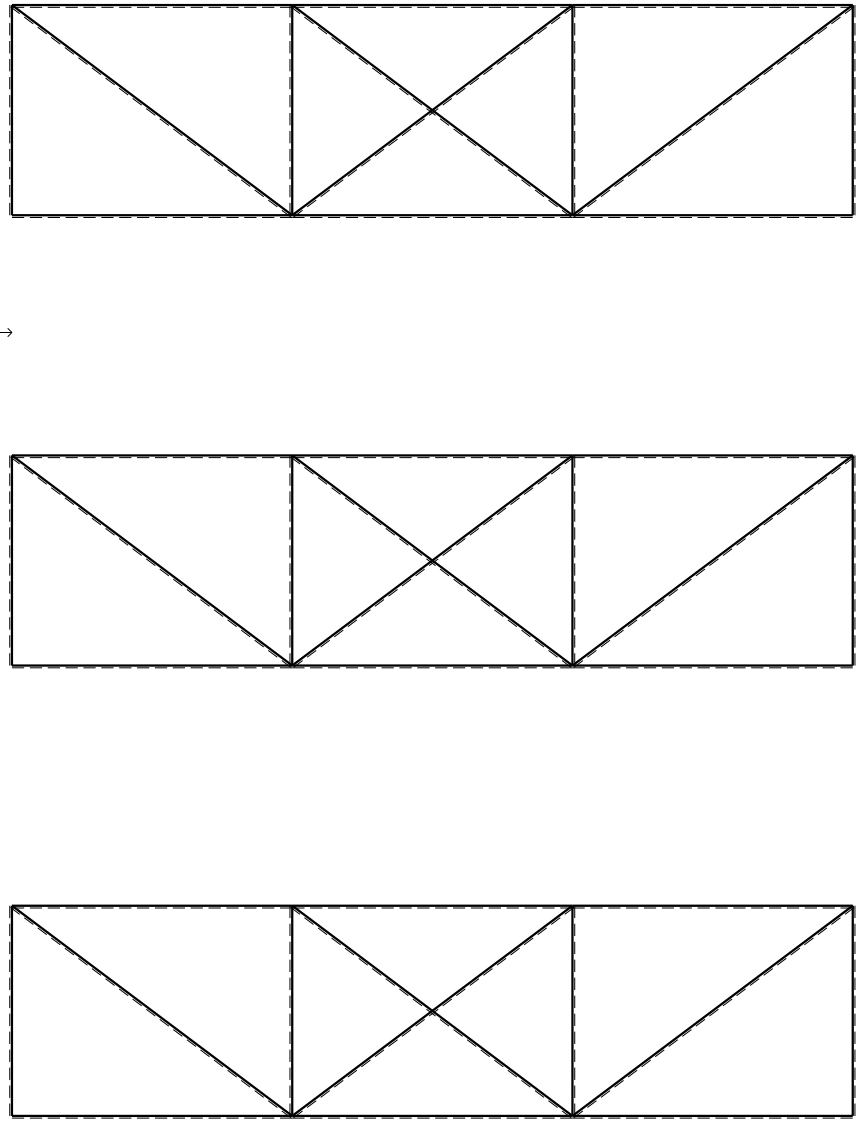
$v_B = 2233/162(Fb/EA)$

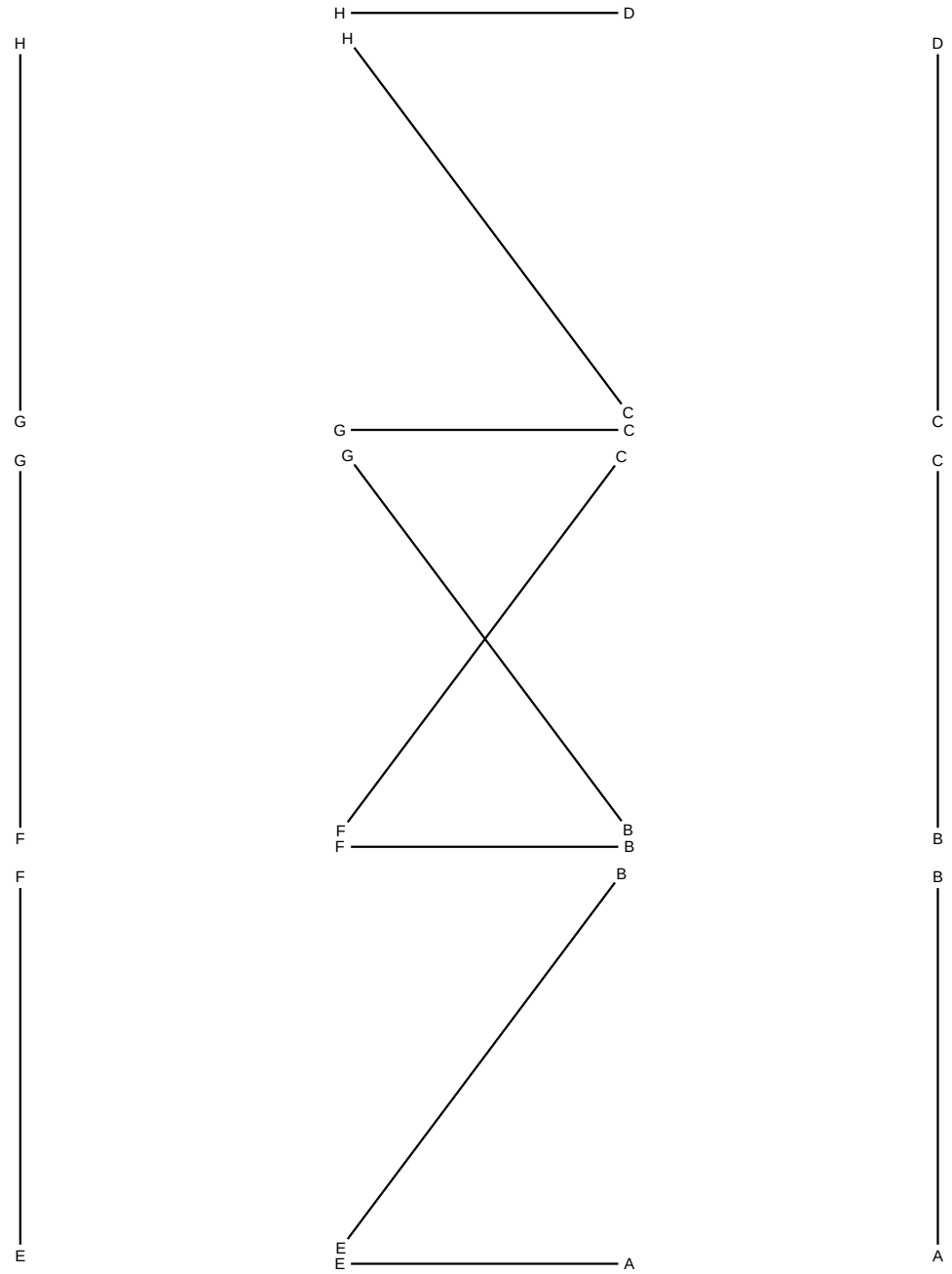


$V_B = 2F$ $u_G = ?$ $v_G = ?$

$EA_{AB} = EA$ $EA_{BC} = EA$ $EA_{CD} = EA$ $EA_{EB} = EA$ $EA_{FC} = EA$ $EA_{BG} = EA$ $EA_{CH} = EA$ $EA_{EF} = EA$ $EA_{FG} = EA$ $EA_{GH} = EA$ $EA_{EA} = EA$ $EA_{FB} = EA$ $EA_{CG} = EA$ $EA_{DH} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo G
Calcolare lo spostamento verticale del nodo G





REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

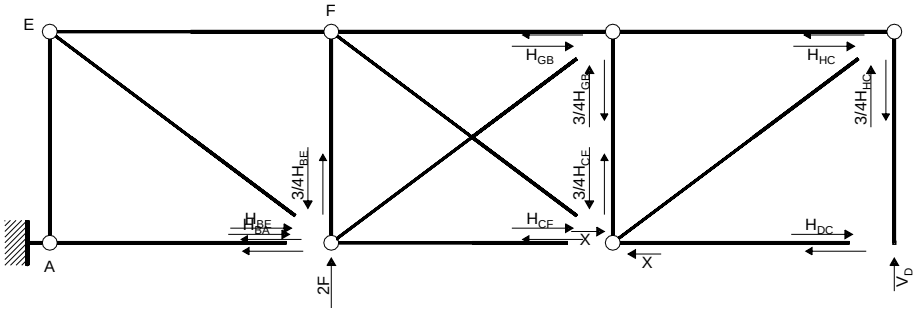
N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_G =

v_G =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db - 3H_{BA}b = -8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db - 3H_{GB}b = 3Xb$

Rotazione intorno a F: aste FB BC BG

$-3H_{BA}b - 3H_{BE}b + 3H_{GB}b = -3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db - 3H_{DC}b - 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$3H_{DC}b - 3H_{CF}b + 3H_{HC}b = 3Xb$

Rotazione intorno a H: aste HD

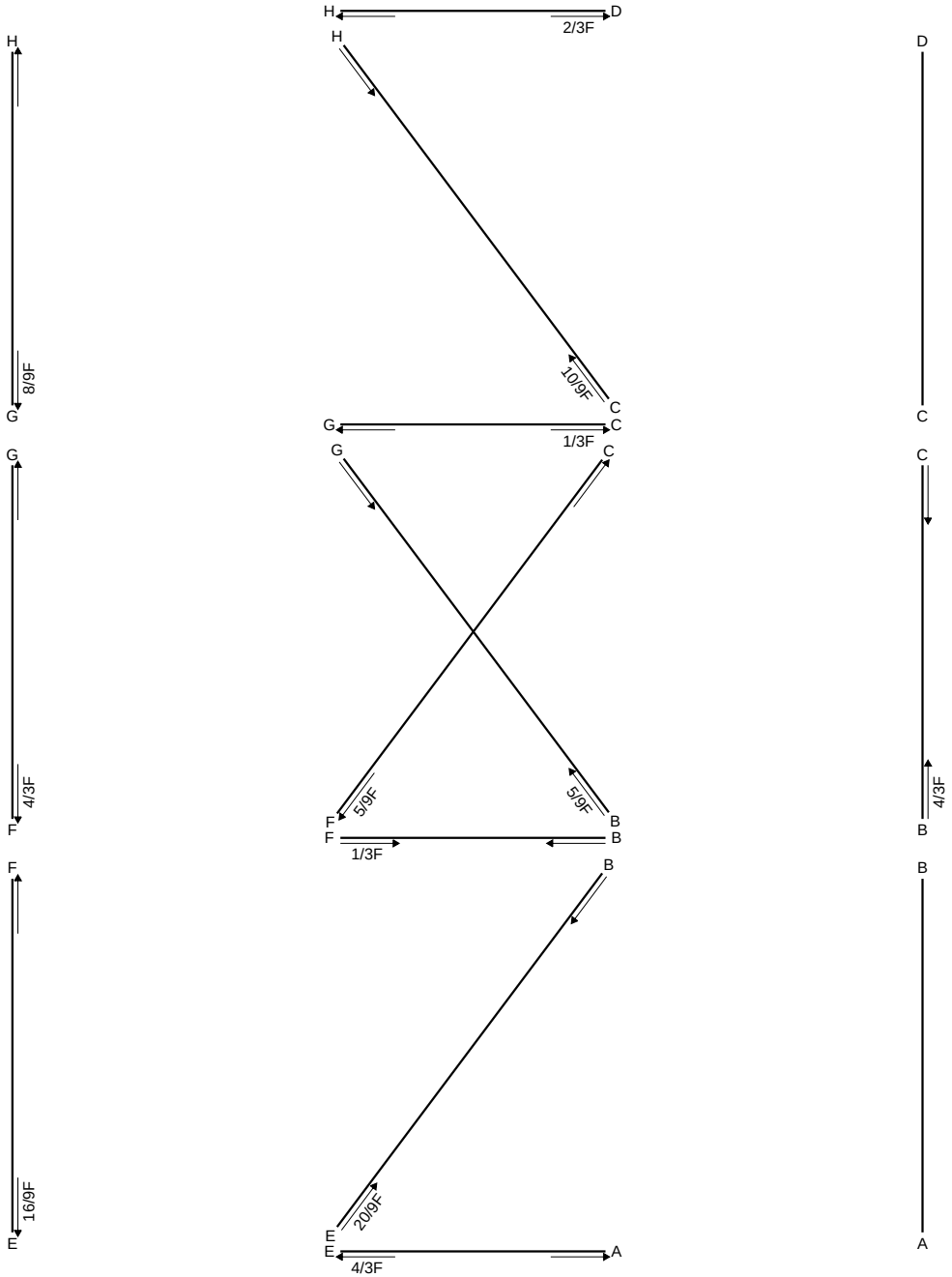
$-3H_{DC}b = 0$

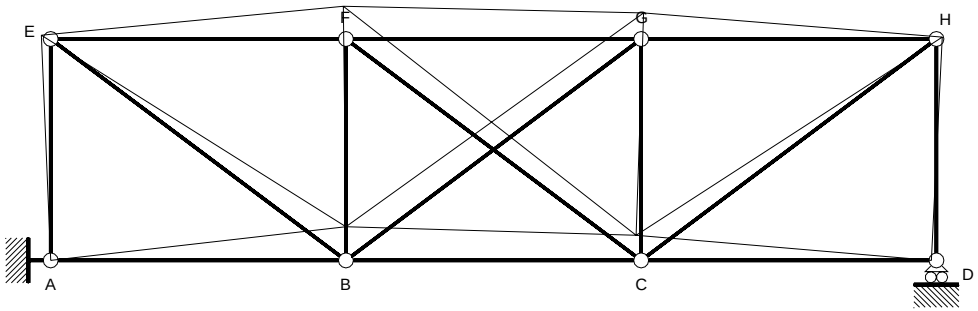
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-8
φ_{EF}	12	-3	0	0	0	0	0		0	-8
φ_{FG}	8	0	0	0	0	-3	0		3	0
φ_{FB}	0	-3	0	-3	0	3	0	=	-3	0
φ_{GH}	4	0	-3	0	0	0	-3		0	0
φ_{GC}	0	0	3	0	-3	0	3		3	0
φ_{HD}	0	0	-3	0	0	0	0		0	0

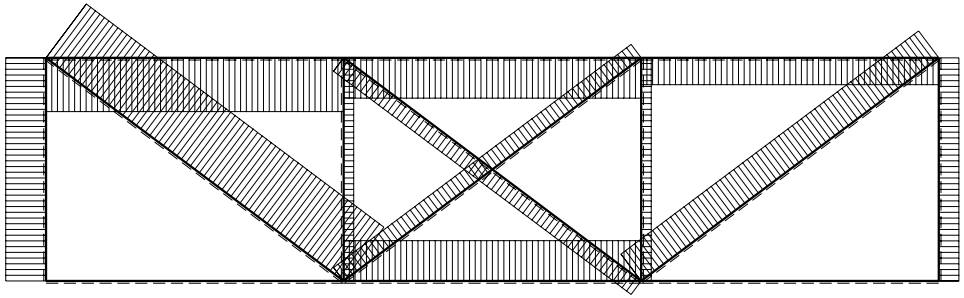
Soluzione del sistema

	Xb	Fb
V_Db	0	-2/3
$H_{BA}b$	0	0
$H_{GB}b$	-1	-16/9
$H_{BE}b$ =	0	-16/9
$H_{DC}b$	0	0
$H_{CF}b$	-1	-8/9
$H_{HC}b$	0	-8/9





80 Fb/EA



2.5 F

REAZIONI

$H_A = 0$ $V_A = -4/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = -4/3F$ $N_{CD} = 0$ $N_{EB} = -20/9F$ $N_{FC} = 5/9F$ $N_{BG} = -5/9F$

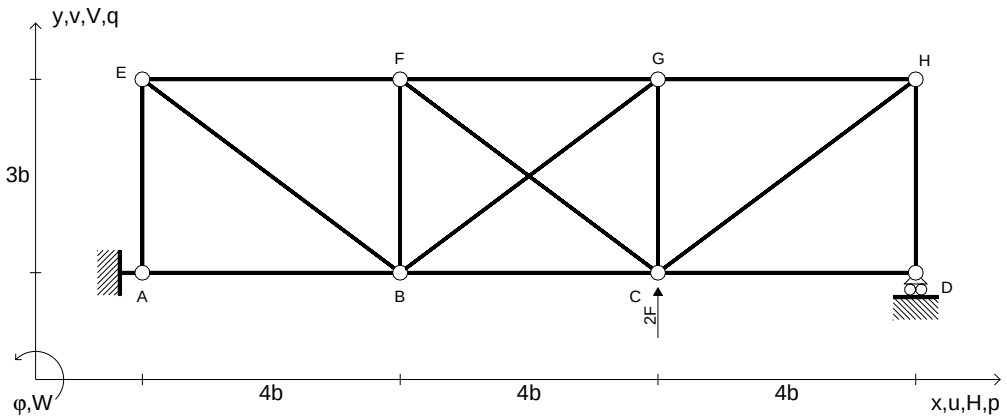
$N_{CH} = -10/9F$ $N_{EF} = 16/9F$ $N_{FG} = 4/3F$ $N_{GH} = 8/9F$ $N_{EA} = 4/3F$ $N_{FB} = -1/3F$

$N_{CG} = 1/3F$ $N_{DH} = 2/3F$

SPOSTAMENTI ASSOLUTI

$u_G = 70/27(Fb/EA)$

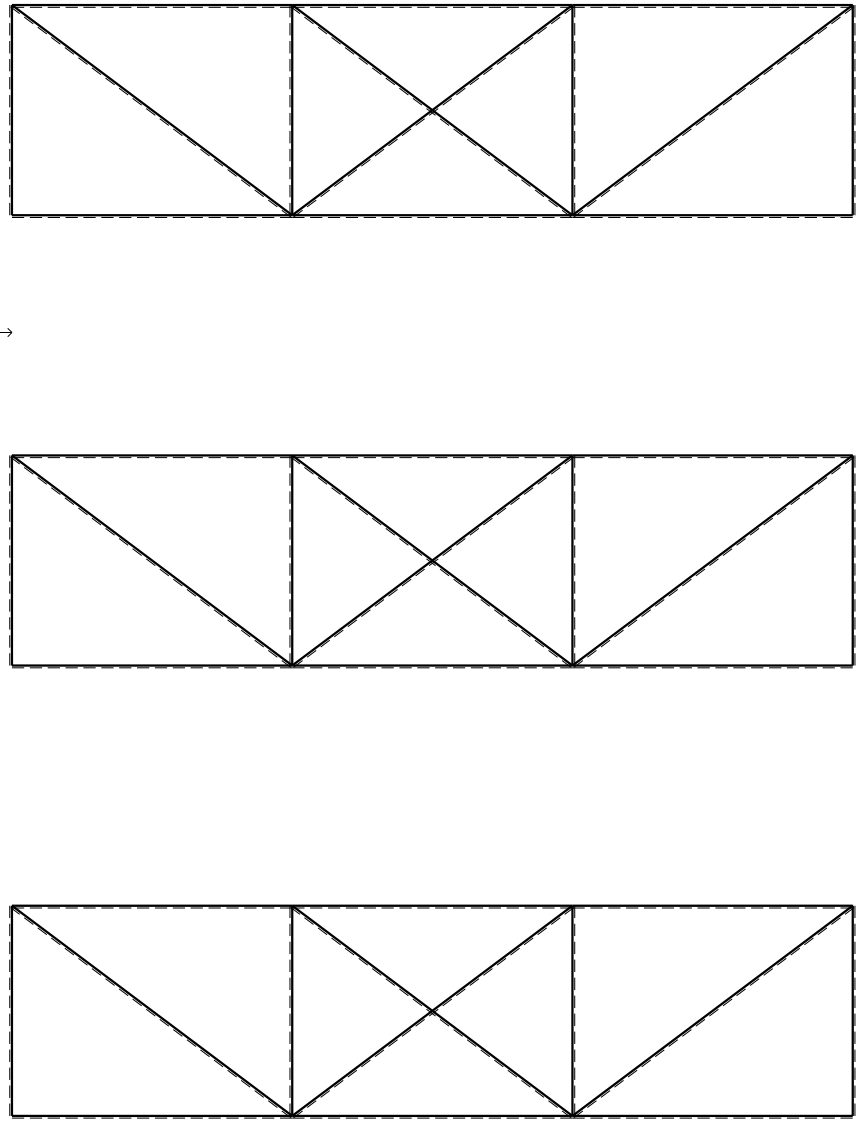
$v_G = 2233/81(Fb/EA)$

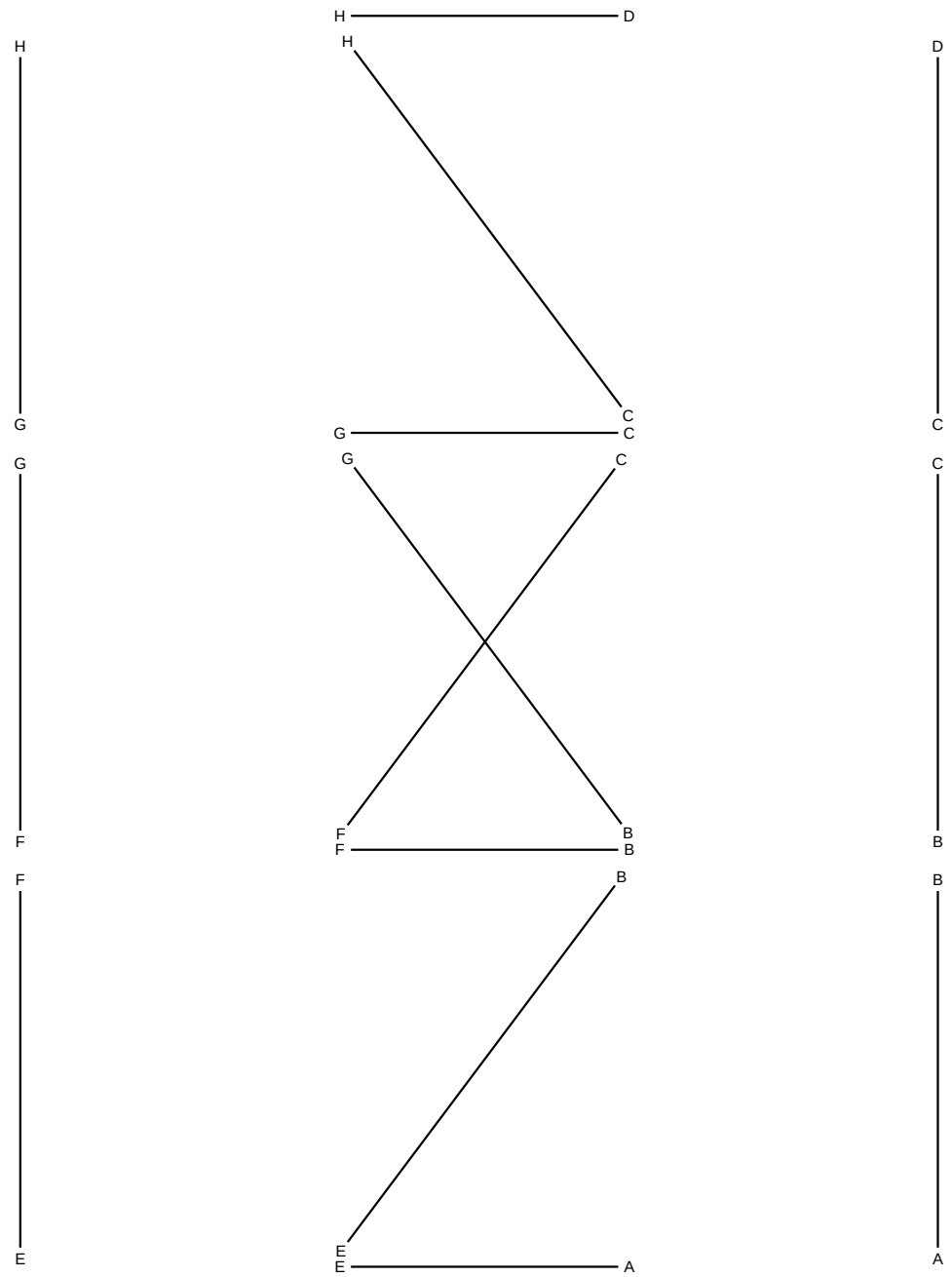


$V_C = 2F$ $u_F = ?$ $v_F = ?$

$EA_{AB} = EA$ $EA_{BC} = EA$ $EA_{CD} = EA$ $EA_{EB} = EA$ $EA_{FC} = EA$ $EA_{BG} = EA$ $EA_{CH} = EA$ $EA_{EF} = EA$ $EA_{FG} = EA$ $EA_{GH} = EA$ $EA_{EA} = EA$ $EA_{FB} = EA$ $EA_{CG} = EA$ $EA_{DH} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo F
Calcolare lo spostamento verticale del nodo F





REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

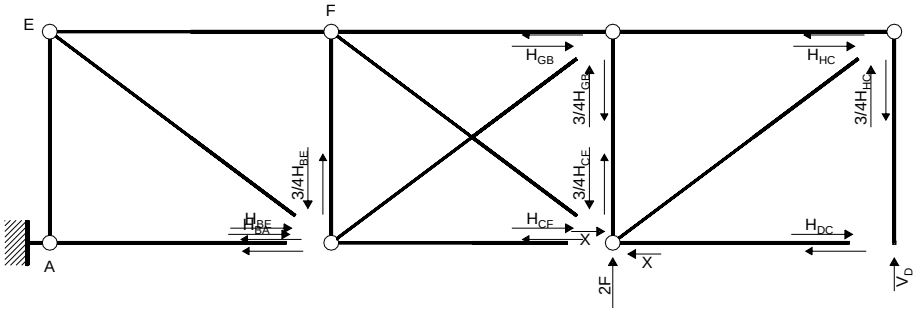
N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_F =

v_F =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -16Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db - 3H_{BA}b = -16Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db - 3H_{GB}b = 3Xb - 8Fb$

Rotazione intorno a F: aste FB BC BG

$-3H_{BA}b - 3H_{BE}b + 3H_{GB}b = -3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db - 3H_{DC}b - 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$3H_{DC}b - 3H_{CF}b + 3H_{HC}b = 3Xb$

Rotazione intorno a H: aste HD

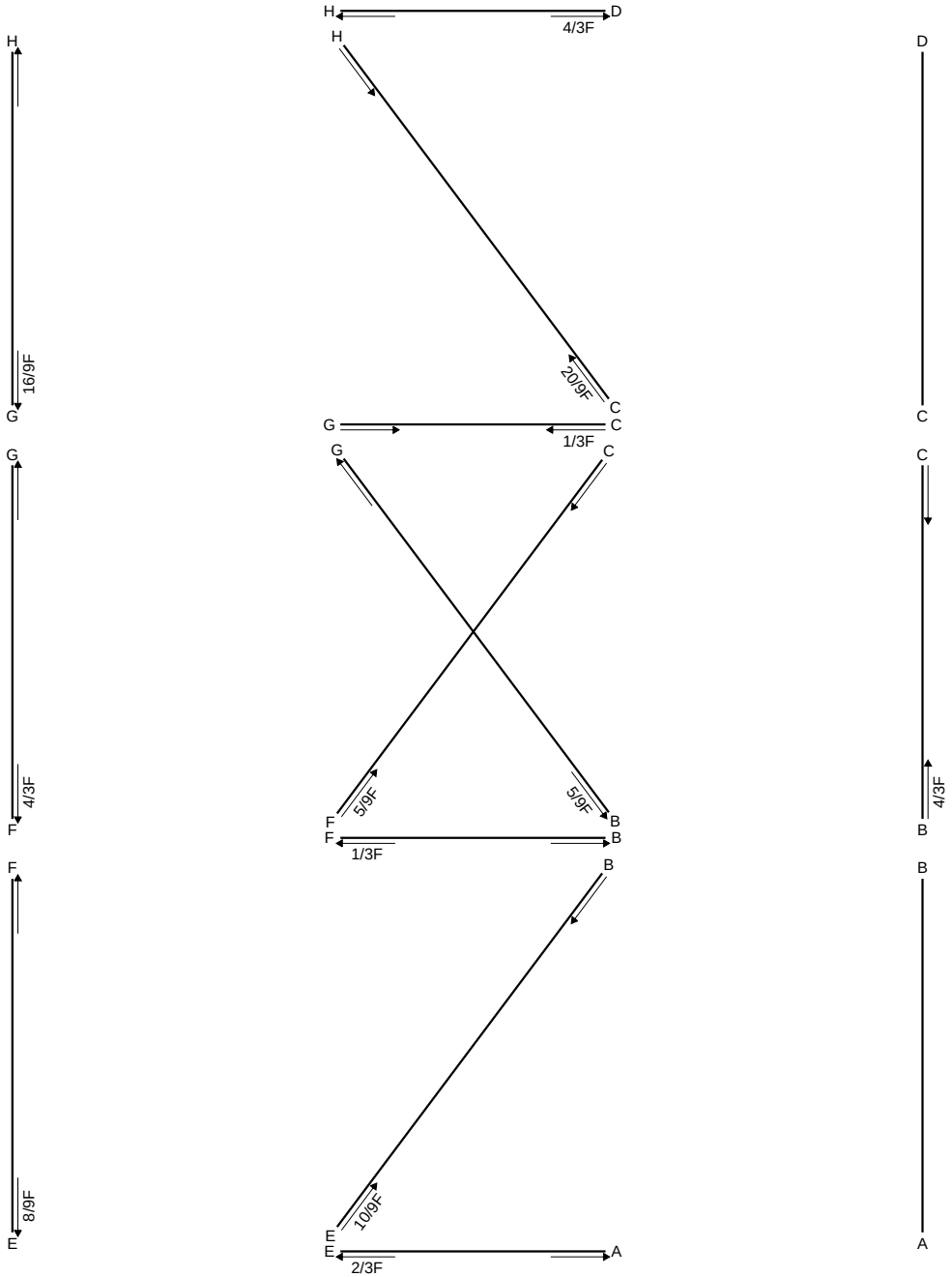
$-3H_{DC}b = 0$

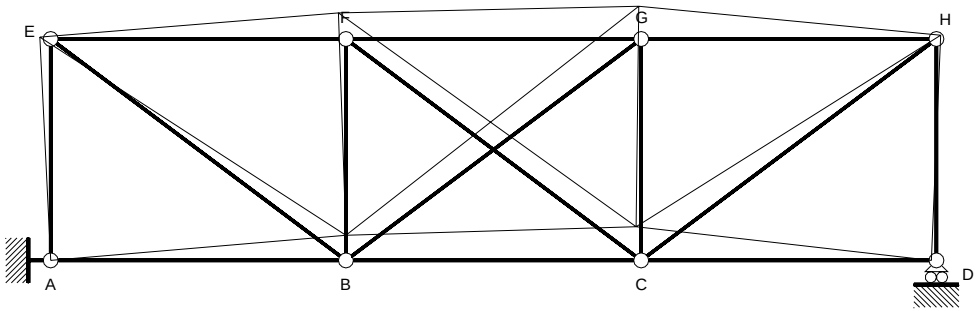
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-16
φ_{EF}	12	-3	0	0	0	0	0		0	-16
φ_{FG}	8	0	0	0	0	-3	0		3	-8
φ_{FB}	0	-3	0	-3	0	3	0	=	-3	0
φ_{GH}	4	0	-3	0	0	0	-3		0	0
φ_{GC}	0	0	3	0	-3	0	3		3	0
φ_{HD}	0	0	-3	0	0	0	0		0	0

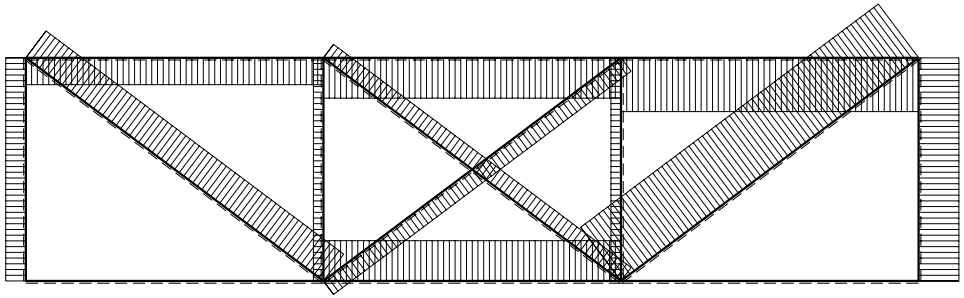
Soluzione del sistema

		Xb	Fb
V_Db		0	-4/3
$H_{BA}b$		0	0
$H_{GB}b$		-1	-8/9
$H_{BE}b$	=	0	-8/9
$H_{DC}b$		0	0
$H_{CF}b$		-1	-16/9
$H_{HC}b$		0	-16/9





⟝ 80 Fb/EA



←⊞→ ⟝ 2.5 F

REAZIONI

$H_A = 0$ $V_A = -2/3F$ $V_D = -4/3F$

$N_{AB} = 0$ $N_{BC} = -4/3F$ $N_{CD} = 0$ $N_{EB} = -10/9F$ $N_{FC} = -5/9F$ $N_{BG} = 5/9F$

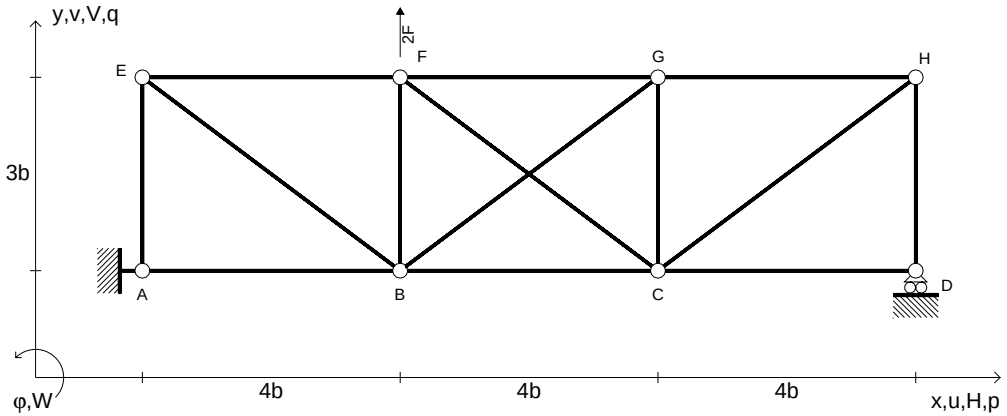
$N_{CH} = -20/9F$ $N_{EF} = 8/9F$ $N_{FG} = 4/3F$ $N_{GH} = 16/9F$ $N_{EA} = 2/3F$ $N_{FB} = 1/3F$

$N_{CG} = -1/3F$ $N_{DH} = 4/3F$

SPOSTAMENTI ASSOLUTI

$u_F = -214/27(Fb/EA)$

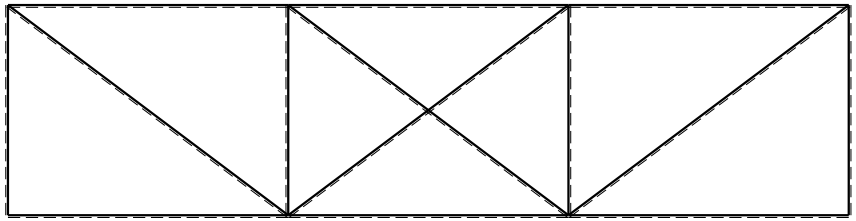
$v_F = 2233/81(Fb/EA)$

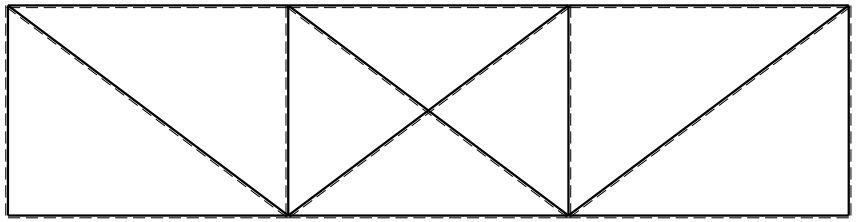


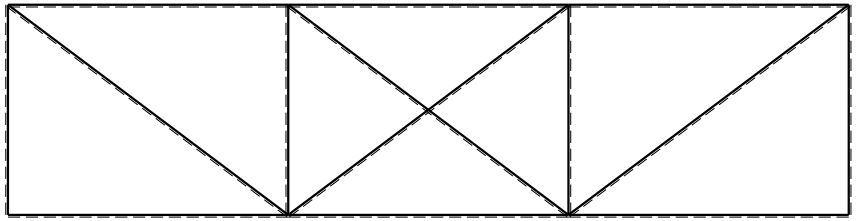
$V_F = 2F$ $u_C = ?$ $v_C = ?$

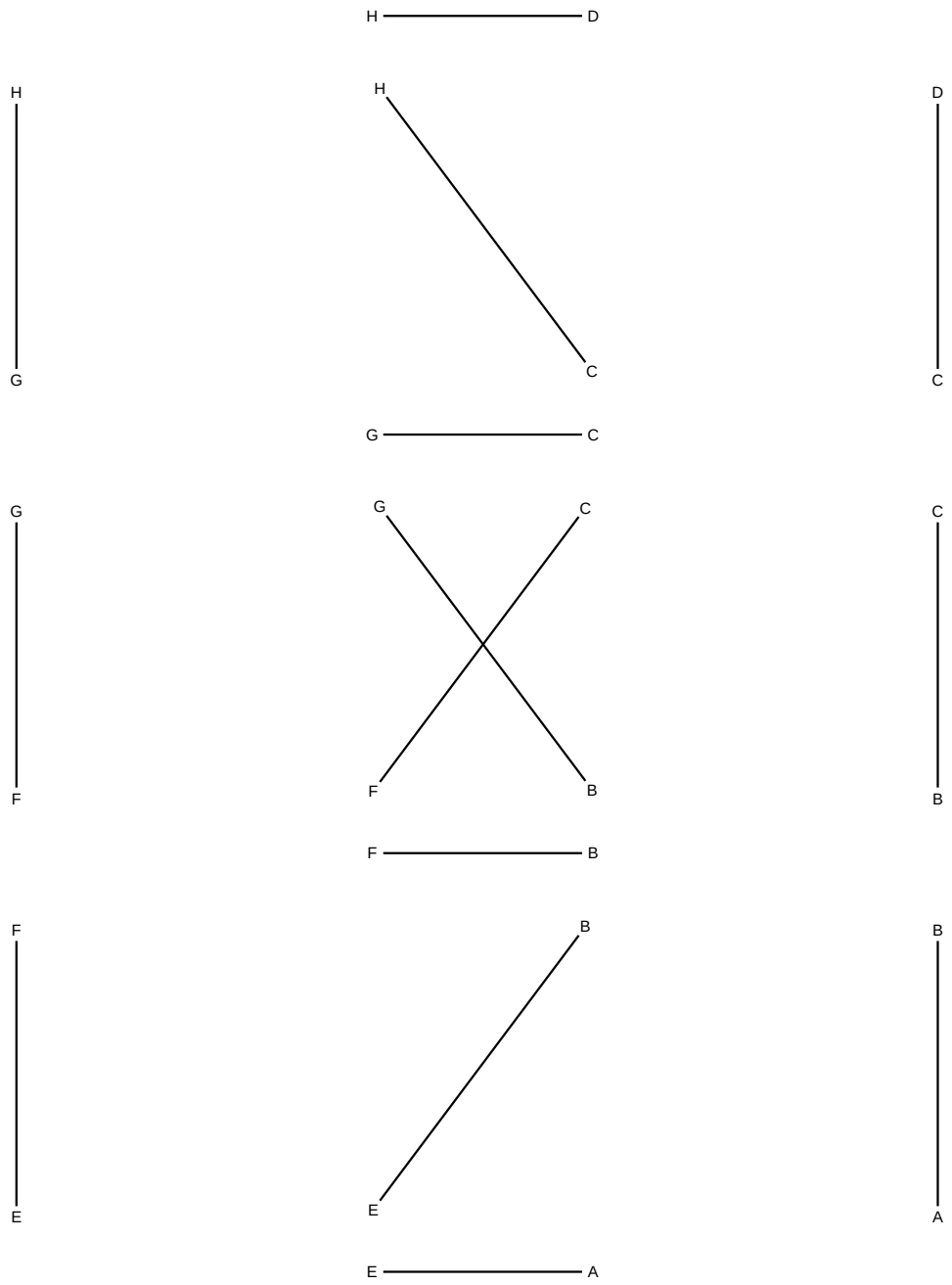
$EA_{AB} = EA$ $EA_{BC} = EA$ $EA_{CD} = EA$ $EA_{EB} = EA$ $EA_{FC} = EA$ $EA_{BG} = EA$ $EA_{CH} = EA$ $EA_{EF} = EA$ $EA_{FG} = EA$ $EA_{GH} = EA$ $EA_{EA} = EA$ $EA_{FB} = EA$ $EA_{CG} = EA$ $EA_{DH} = EA$

Svolgere l'analisi cinematica.
Riportare la soluzione su questo foglio.
Carichi e deformazioni date hanno verso efficace in disegno.
Calcolare reazioni vincolari della struttura e delle aste.
Tracciare i diagrammi delle azioni interne nelle aste.
A_{YZ} - x_{YZ} - θ_{YZ} riferimento locale asta YZ con origine in Y.
Calcolare lo spostamento orizzont. del nodo C
Calcolare lo spostamento verticale del nodo C









REAZIONI

H_A = V_A = V_D =

N_{AB} = N_{BC} = N_{CD} = N_{EB} = N_{FC} = N_{BG} =

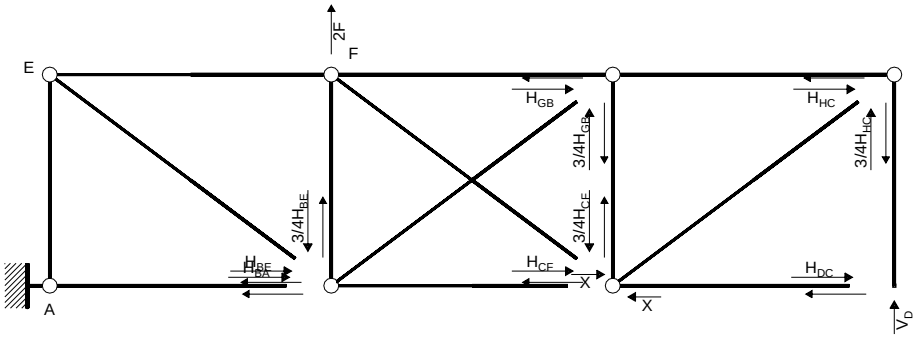
N_{CH} = N_{EF} = N_{FG} = N_{GH} = N_{EA} = N_{FB} =

N_{CG} = N_{DH} =

SPOSTAMENTI ASSOLUTI

u_C =

v_C =



EQUAZIONI DI EQUILIBRIO

Rotazione intorno a A: aste AE EB EF FC FG FB BC BG GH GC CD CH HD

$12V_Db = -8Fb$

Rotazione intorno a E: aste EF FC FG FB BC BG GH GC CD CH HD

$12V_Db - 3H_{BA}b = -8Fb$

Rotazione intorno a F: aste FG GH GC CD CH HD

$8V_Db - 3H_{GB}b = 3Xb$

Rotazione intorno a F: aste FB BC BG

$-3H_{BA}b - 3H_{BE}b + 3H_{GB}b = -3Xb$

Rotazione intorno a G: aste GH HD

$4V_Db - 3H_{DC}b - 3H_{HC}b = 0$

Rotazione intorno a G: aste GC CD CH

$3H_{DC}b - 3H_{CF}b + 3H_{HC}b = 3Xb$

Rotazione intorno a H: aste HD

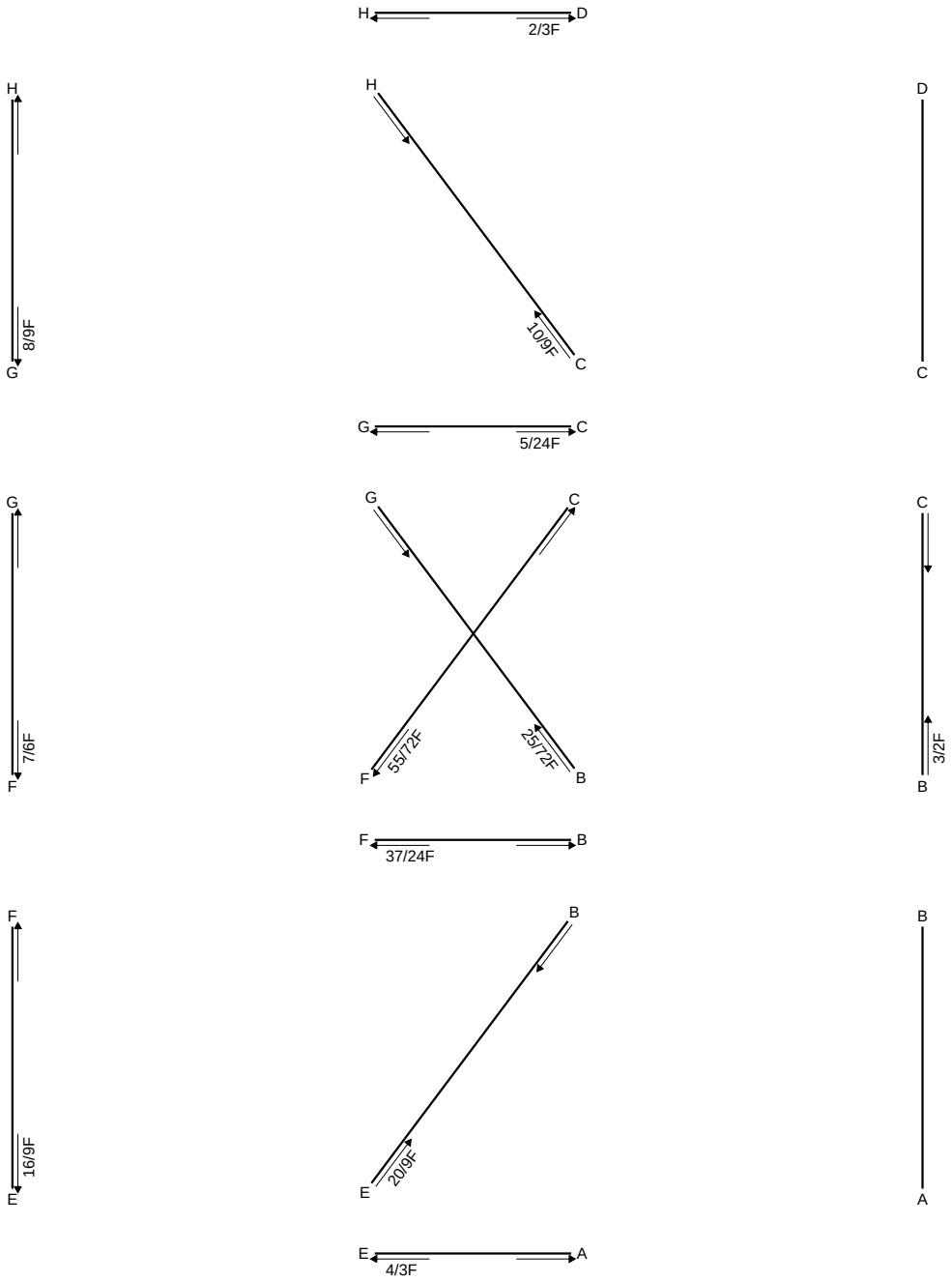
$-3H_{DC}b = 0$

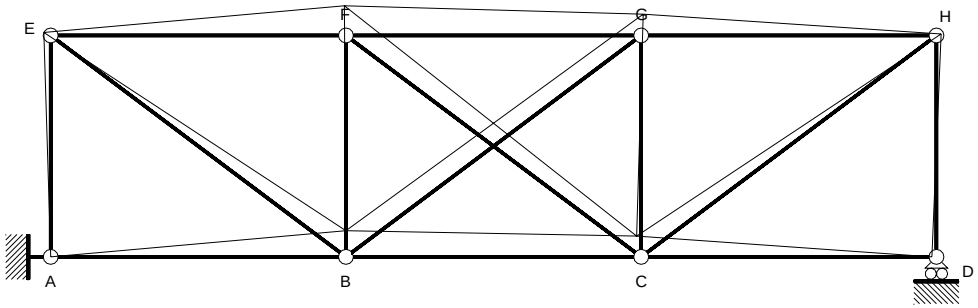
Matrice di equilibrio

	V_Db	$H_{BA}b$	$H_{DC}b$	$H_{BE}b$	$H_{CF}b$	$H_{GB}b$	$H_{HC}b$		Xb	Fb
φ_{AE}	12	0	0	0	0	0	0		0	-8
φ_{EF}	12	-3	0	0	0	0	0		0	-8
φ_{FG}	8	0	0	0	0	-3	0		3	0
φ_{FB}	0	-3	0	-3	0	3	0	=	-3	0
φ_{GH}	4	0	-3	0	0	0	-3		0	0
φ_{GC}	0	0	3	0	-3	0	3		3	0
φ_{HD}	0	0	-3	0	0	0	0		0	0

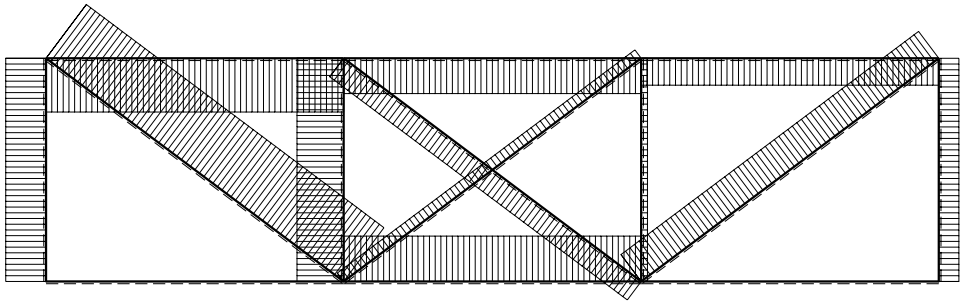
Soluzione del sistema

		Xb	Fb
V_Db		0	-2/3
$H_{BA}b$		0	0
$H_{GB}b$		-1	-16/9
$H_{BE}b$	=	0	-16/9
$H_{DC}b$		0	0
$H_{CF}b$		-1	-8/9
$H_{HC}b$		0	-8/9





100 Fb/EA



+ 2.5 F

REAZIONI

$H_A = 0$ $V_A = -4/3F$ $V_D = -2/3F$

$N_{AB} = 0$ $N_{BC} = -3/2F$ $N_{CD} = 0$ $N_{EB} = -20/9F$ $N_{FC} = 55/72F$ $N_{BG} = -25/72F$

$N_{CH} = -10/9F$ $N_{EF} = 16/9F$ $N_{FG} = 7/6F$ $N_{GH} = 8/9F$ $N_{EA} = 4/3F$ $N_{FB} = 37/24F$

$N_{CG} = 5/24F$ $N_{DH} = 2/3F$

SPOSTAMENTI ASSOLUTI

$u_C = -6(Fb/EA)$

$v_C = 2233/81(Fb/EA)$