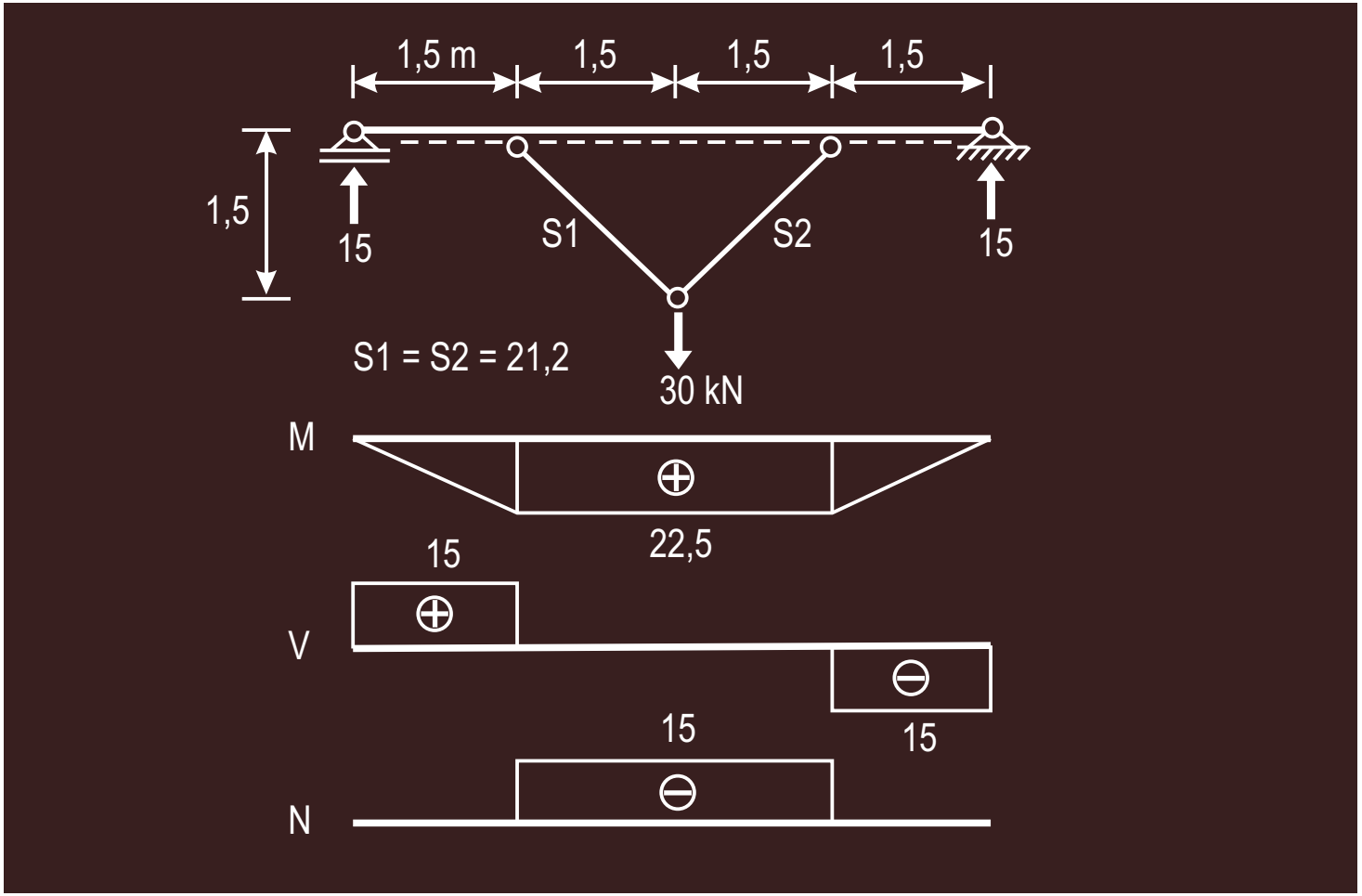
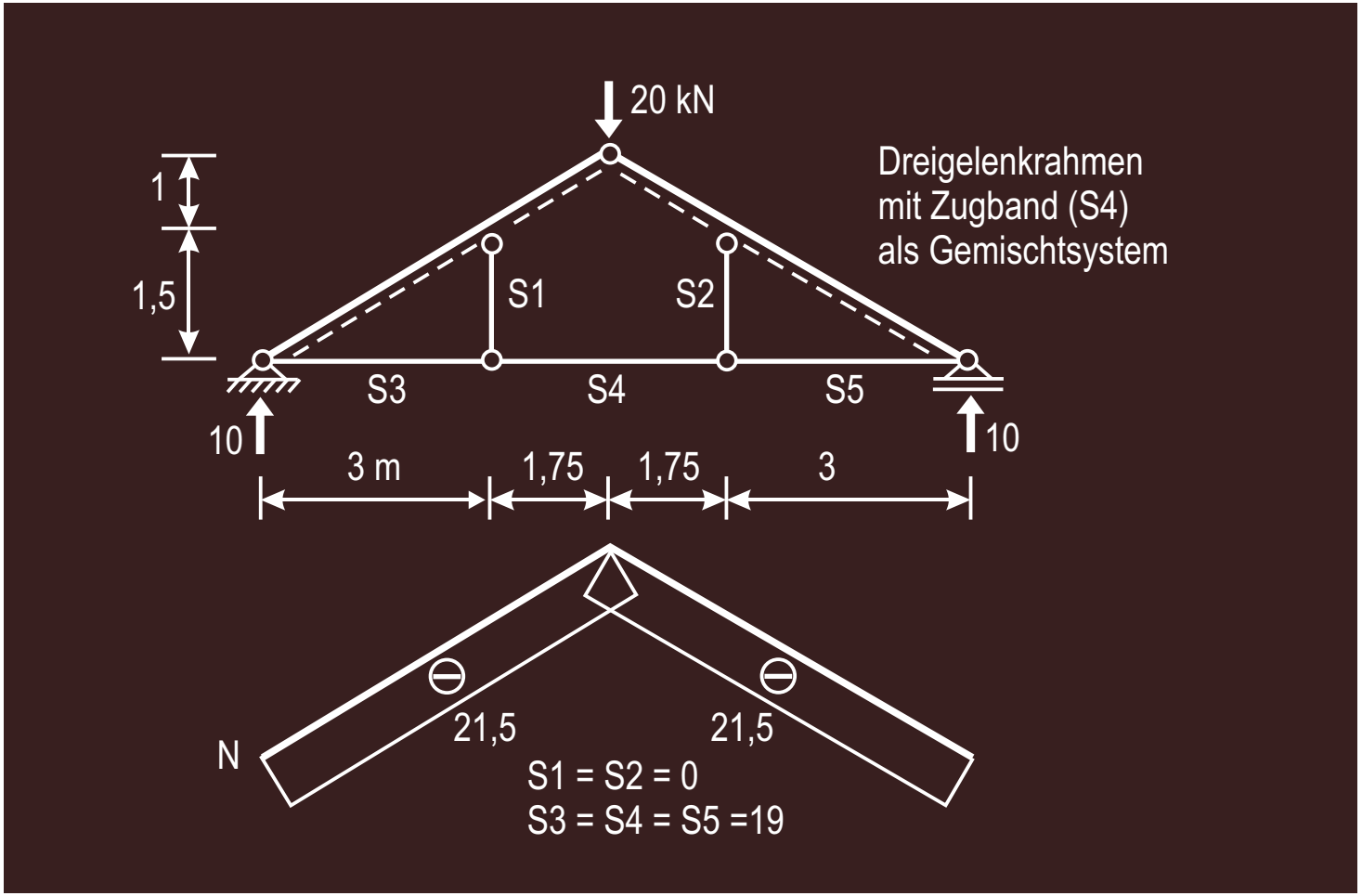
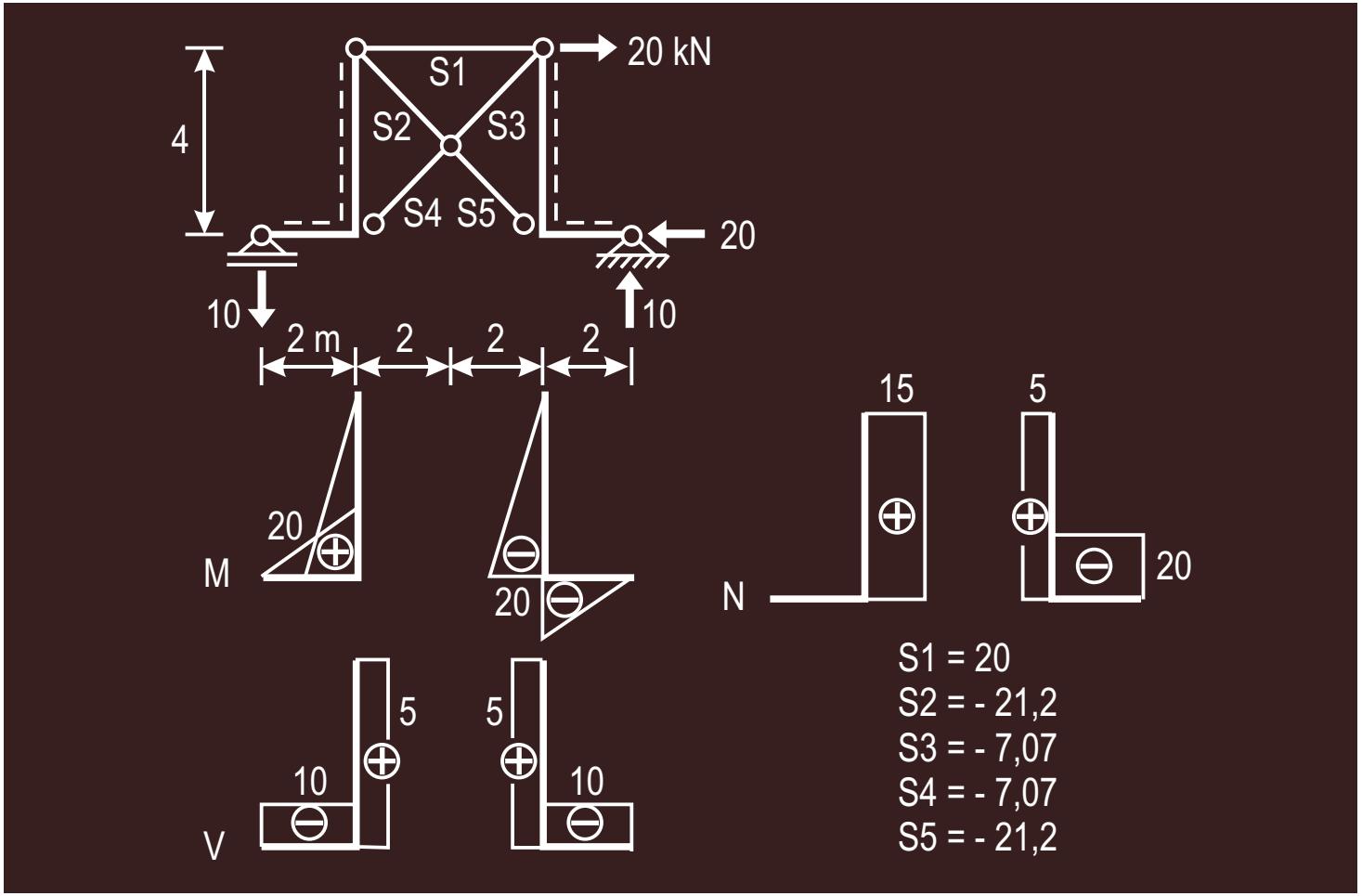
Diethard Thieme
Skripte zur Baumechanik

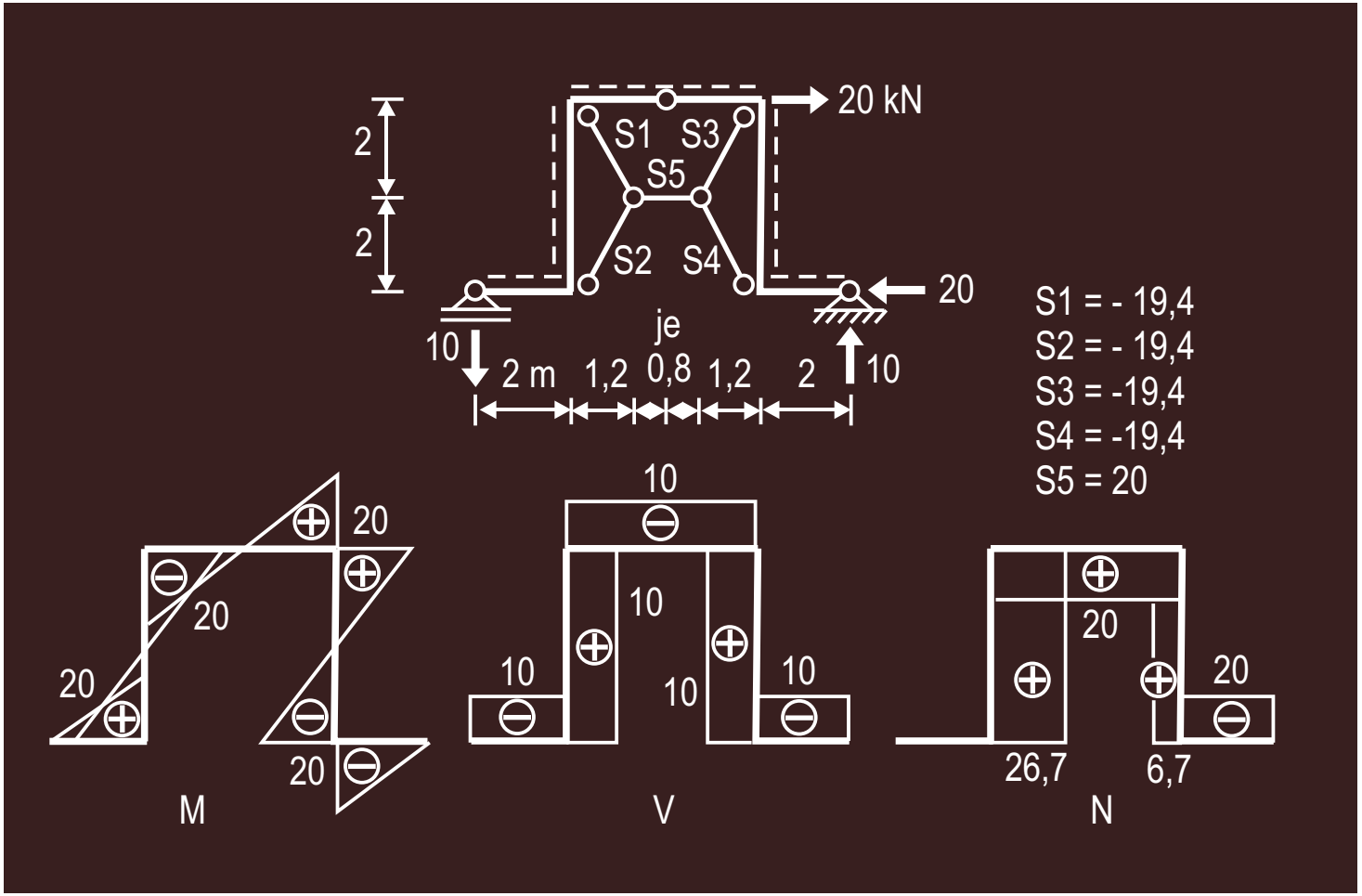
Übungen
mit
Lösungen
BM 44

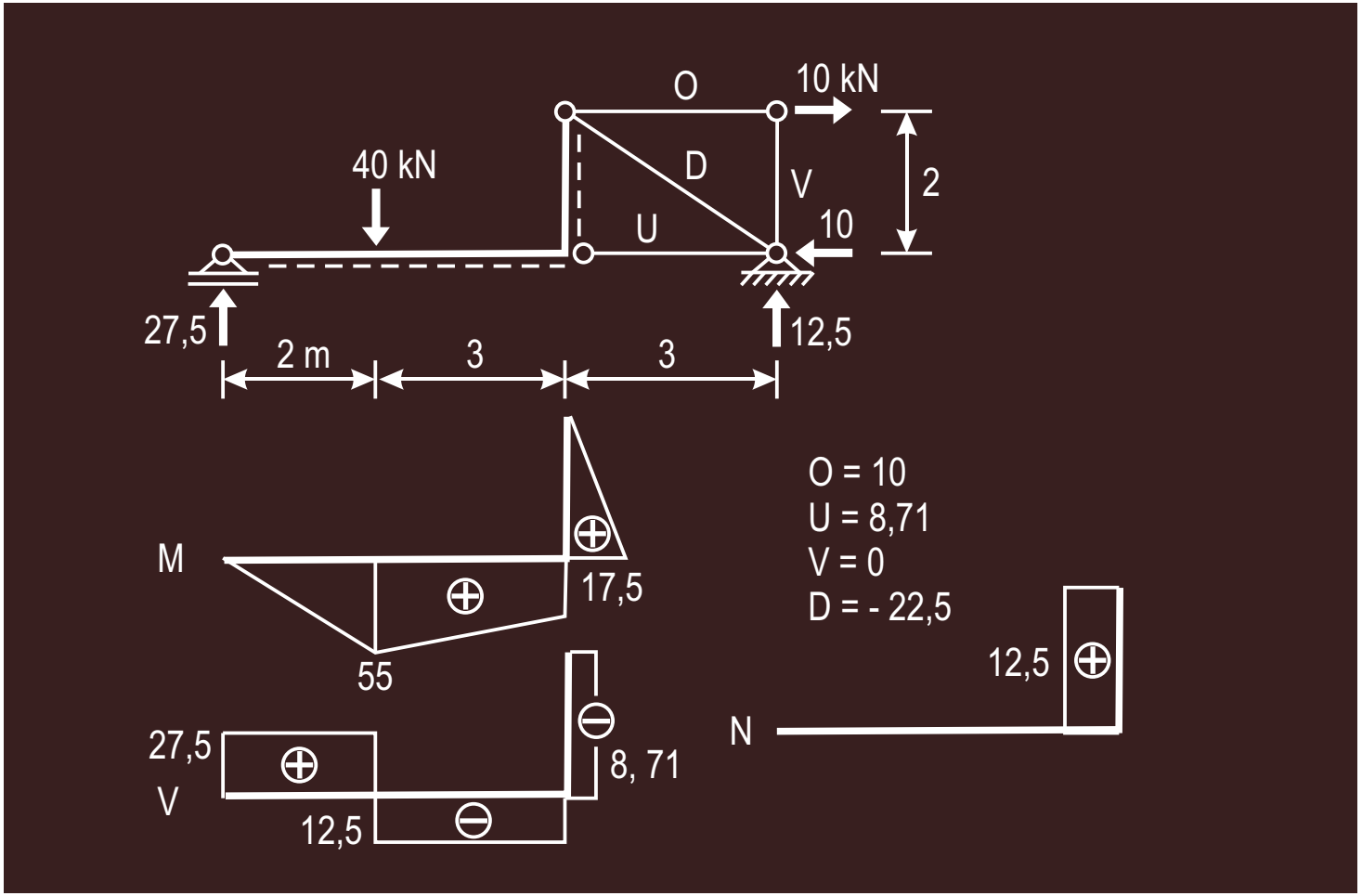
DIADEM-HETHITER-VERLAG.DE

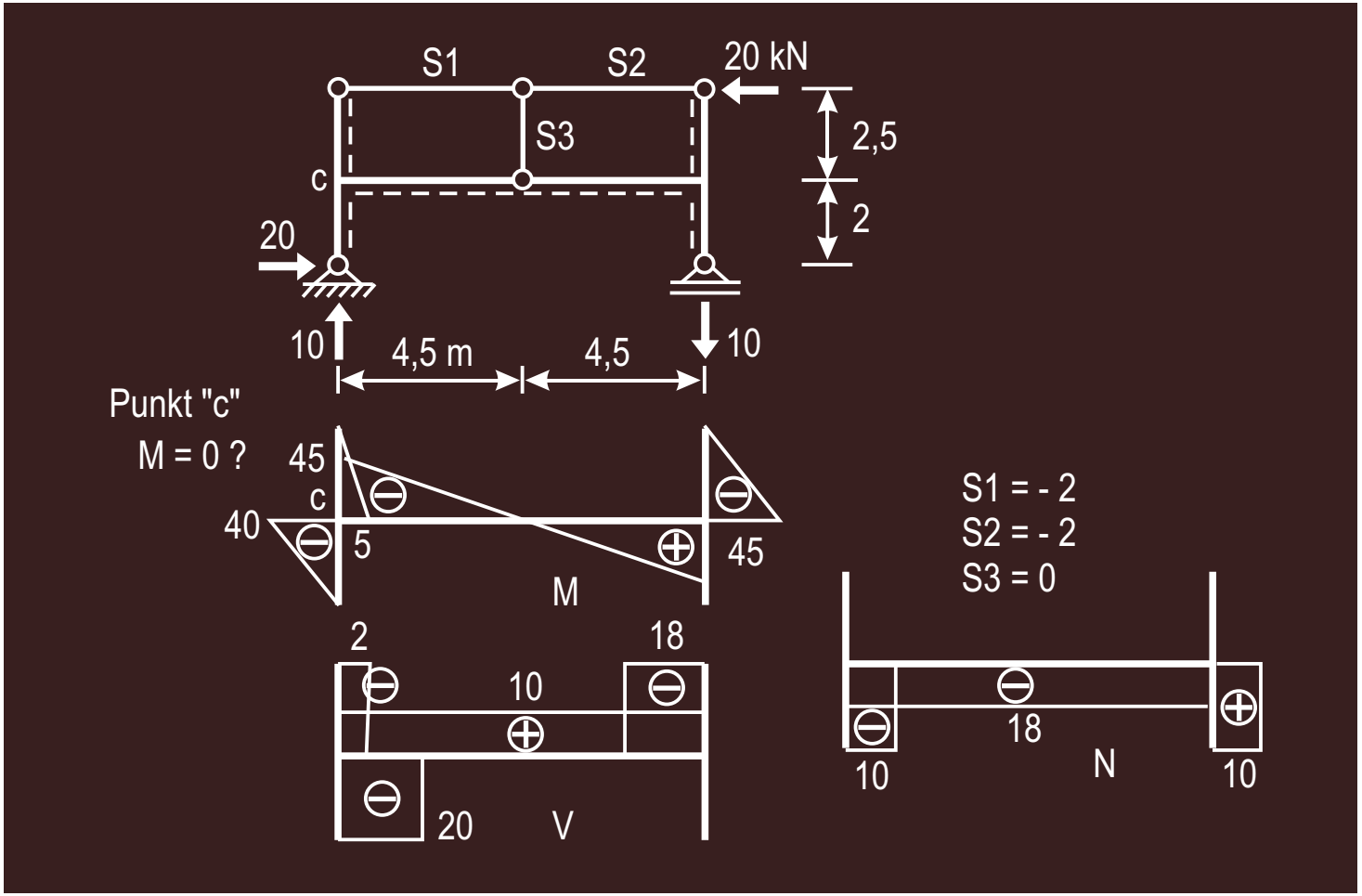

1,5 m
1,5
1,5
1,5
1,5
15
S1
S2
15
S1 = S2 = 21,2
30 kN
M
22,5
15
V
15
15
N

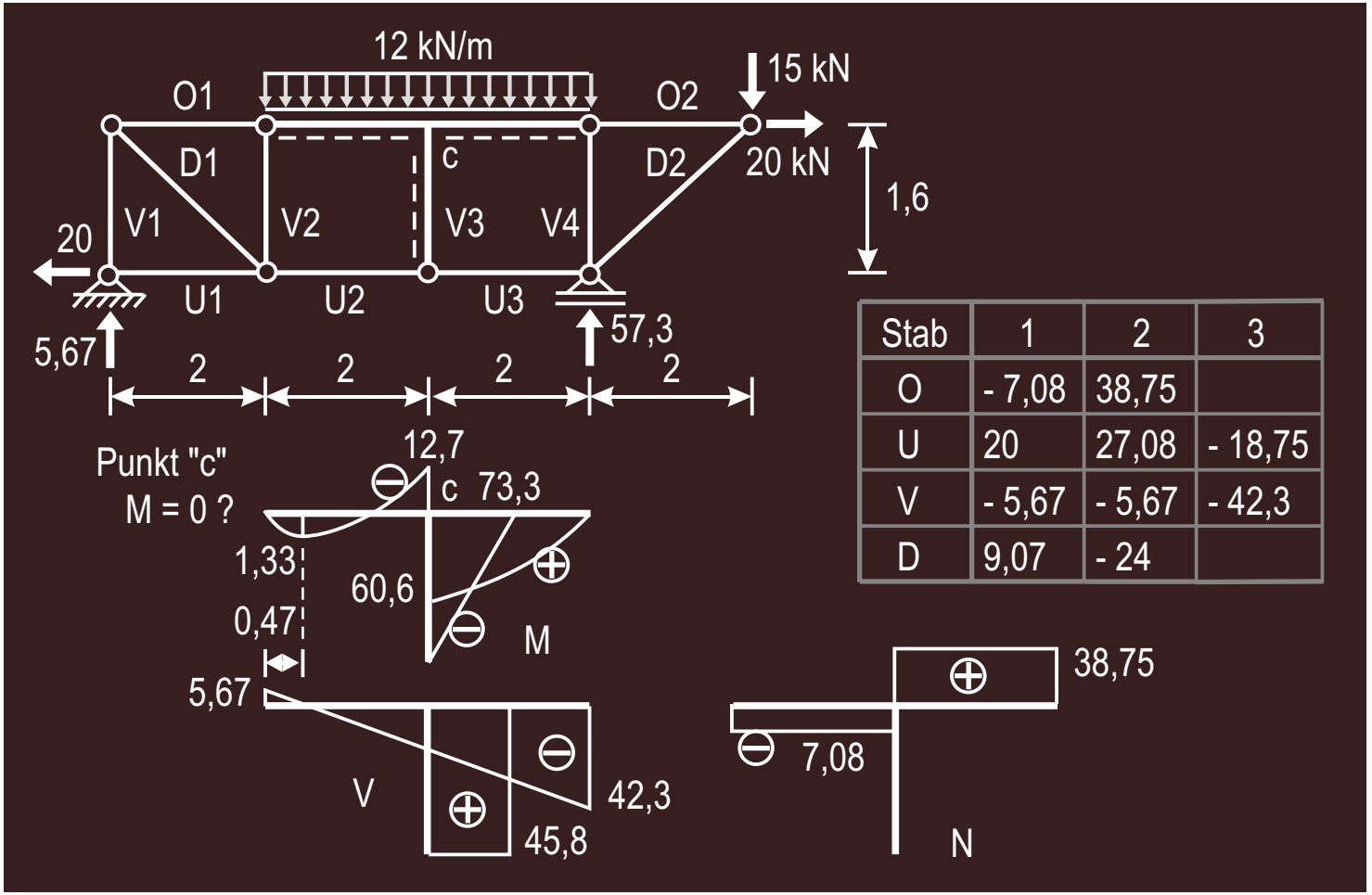

20 kN
Dreigelenkrahmen
mit Zugband (S4)
als Gemischtsystem
1
1,5
S1
S2
S3
S4
S5
10
10
3 m
1,75
1,75
3
N
21,5
21,5
S1 = S2 = 0
S3 = S4 = S5 =19


20 kN
S1
S2
S3
S4
S5
4
20
10
10
2 m
2
2
2
M
20
20
N
15
5
20
V
10
5
5
10
S1 = 20
S2 = - 21,2
S3 = - 7,07
S4 = - 7,07
S5 = - 21,2

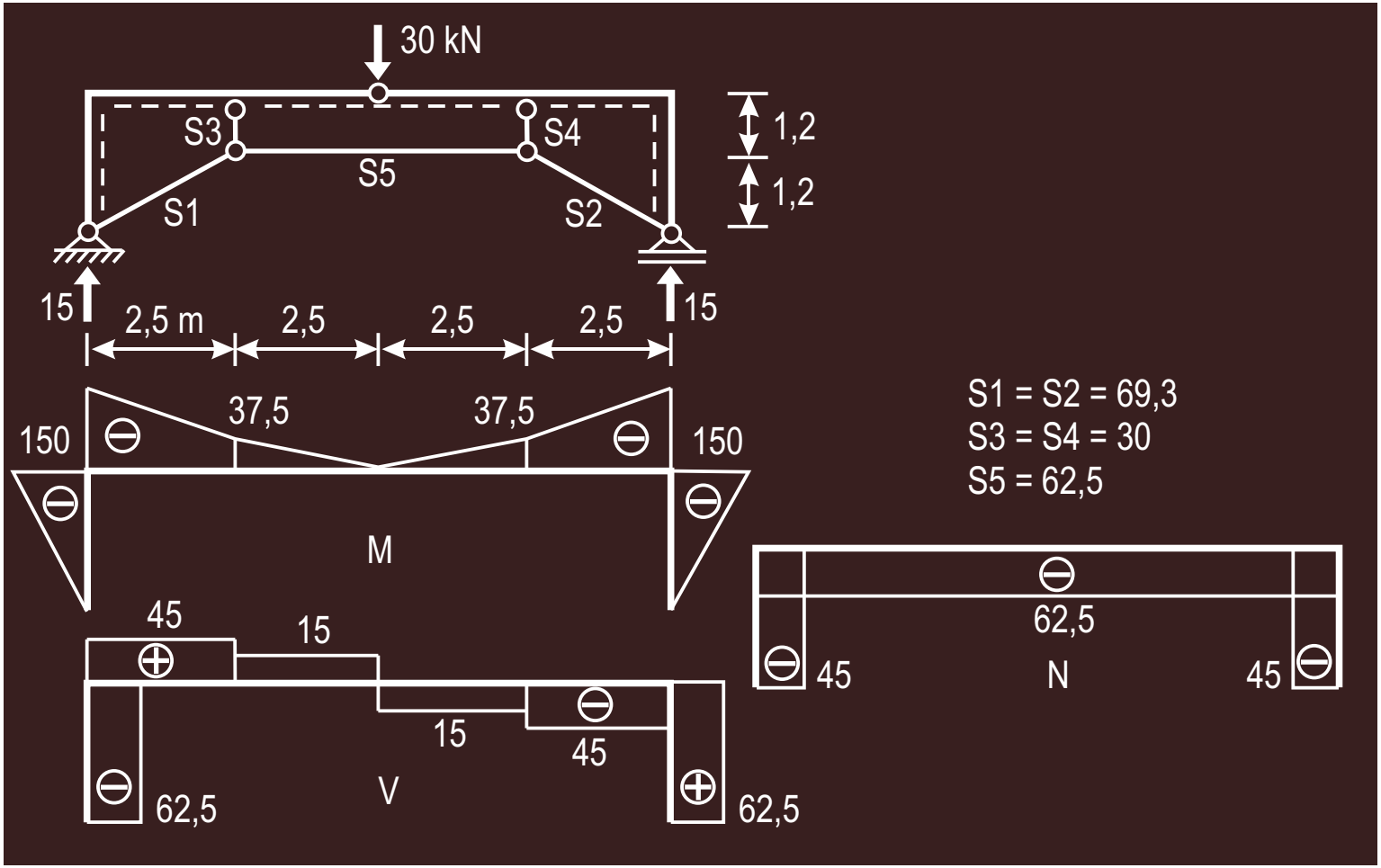

2
2
S1
S3
S5
S2
S4
20 kN
20
10
je
2 m
1,2
0,8
1,2
2
10
S1 = - 19,4
S2 = - 19,4
S3 = -19,4
S4 = -19,4
S5 = 20
20
20
20
20
M
10
10
10
10
10
V
20
20
26,7
6,7
N

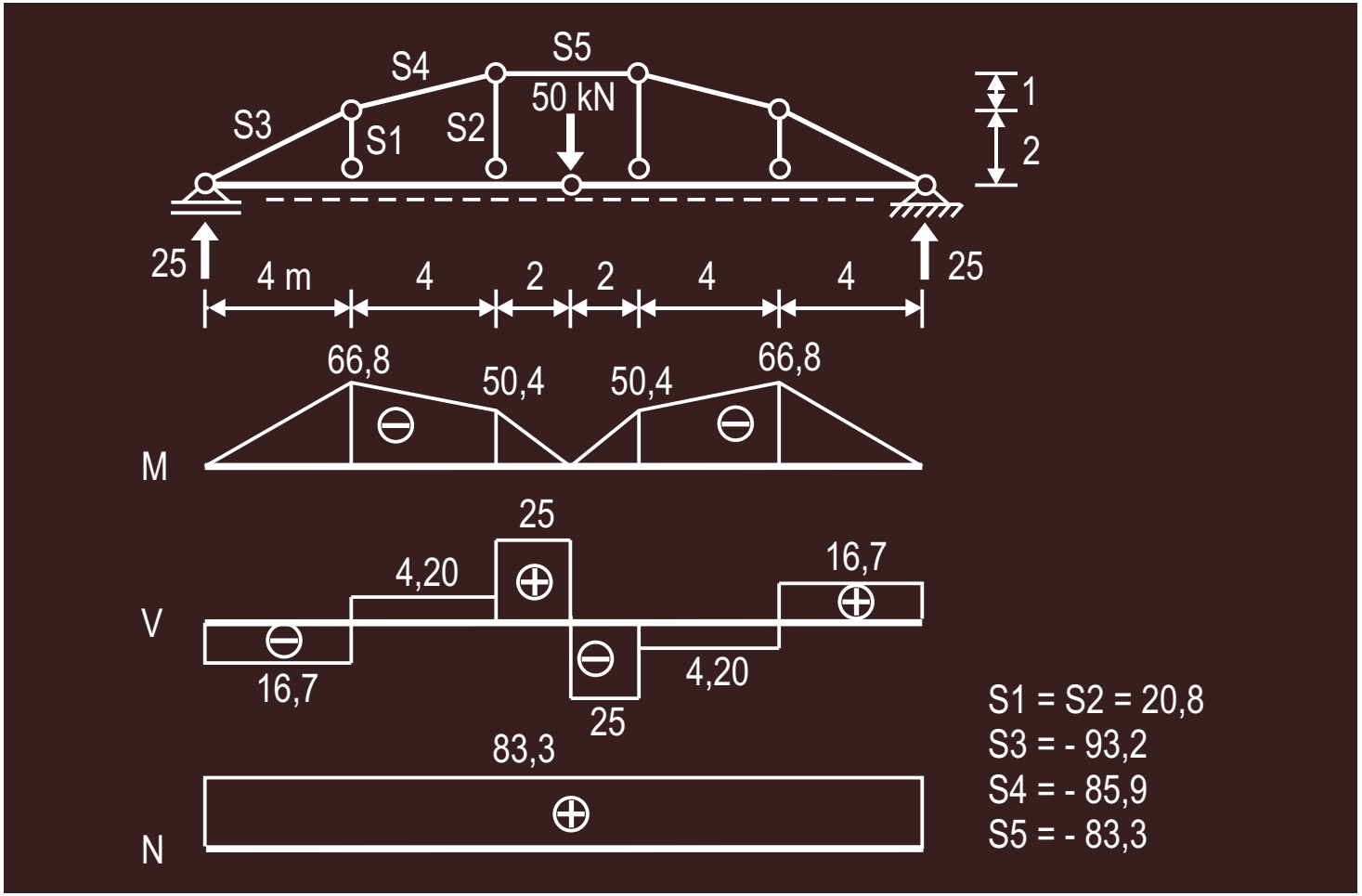

O
10 kN
40 kN
D
V
2
U
10
27,5
12,5
2 m
3
3
M
17,5
55
O = 10
U = 8,71
V = 0
D = - 22,5
12,5
N
27,5
V
8, 71
12,5

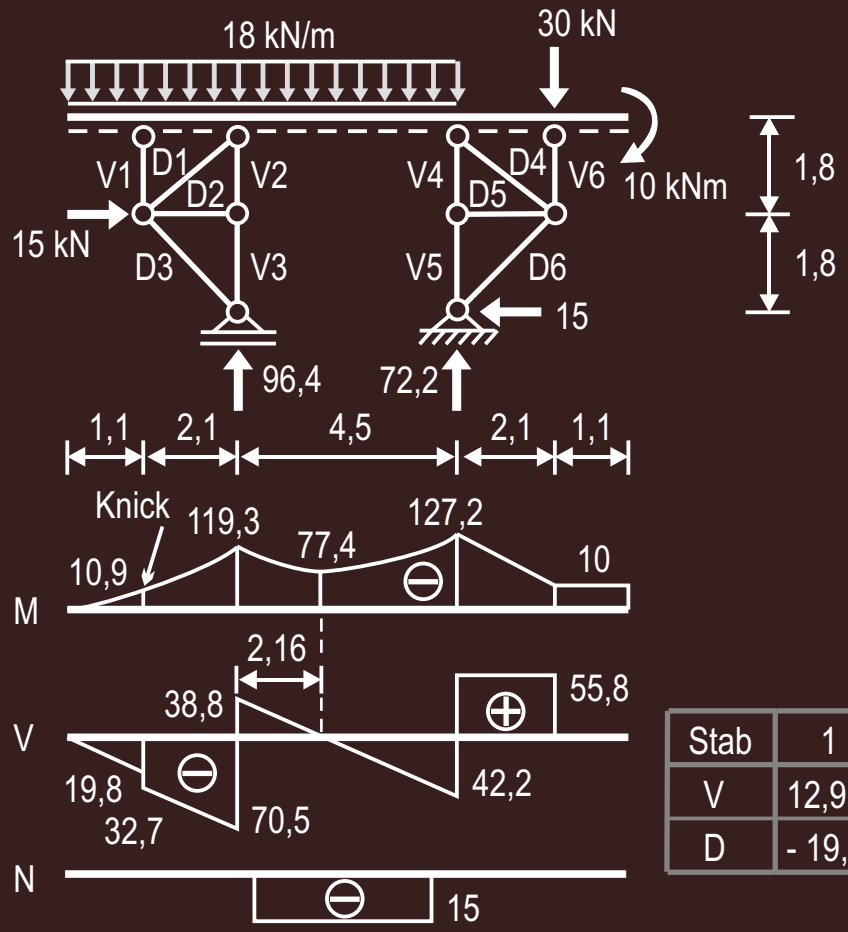

S1
S2
20 kN
S3
2,5
2
c
20
10
4,5 m
4,5
10
Punkt "c"
M = 0 ?
45
c
40
5
45
M
2
18
10
20
V
S1 = - 2
S2 = - 2
S3 = 0
18
10
10
N



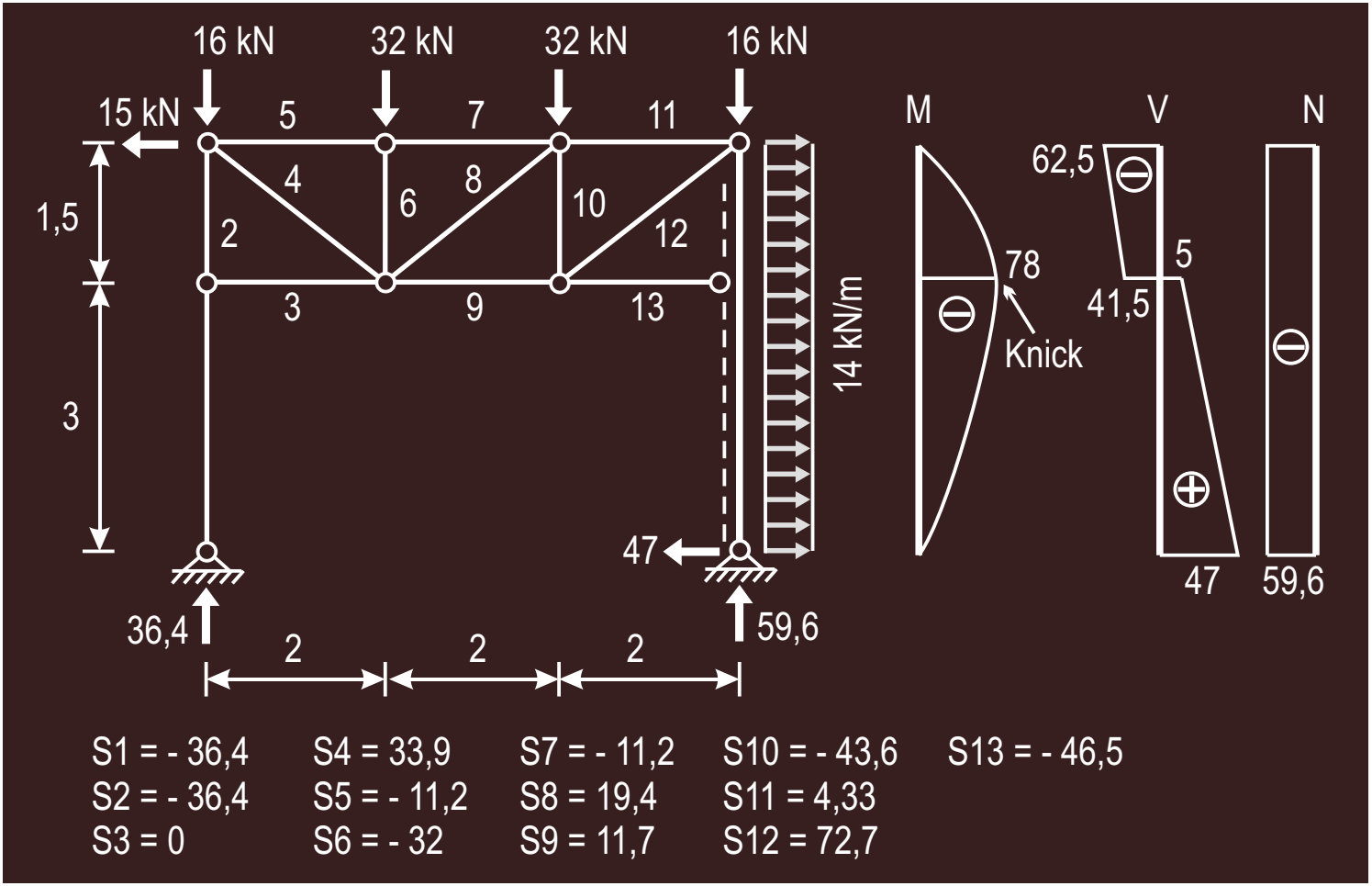
Stab	1	2	3
O	- 7,08	38,75	
U	20	27,08	- 18,75
V	- 5,67	- 5,67	- 42,3
D	9,07	- 24	

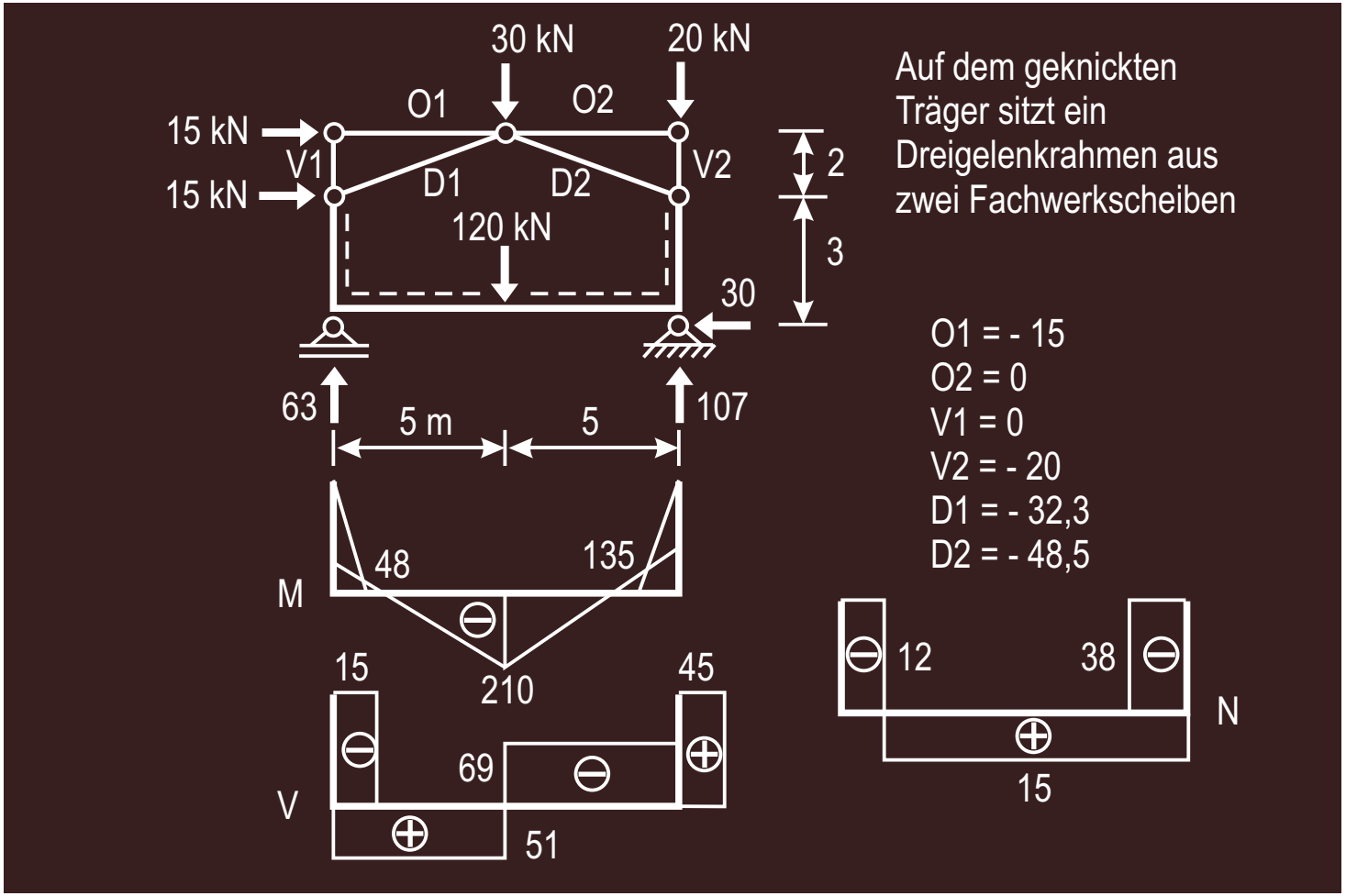

30 kN
S3
S4
S5
S1
S2
1,2
1,2
15
2,5 m
2,5
2,5
2,5
15
37,5
37,5
150
150
M
45
15
15
45
62,5
V
62,5
S1 = S2 = 69,3
S3 = S4 = 30
S5 = 62,5
62,5
45
N
45

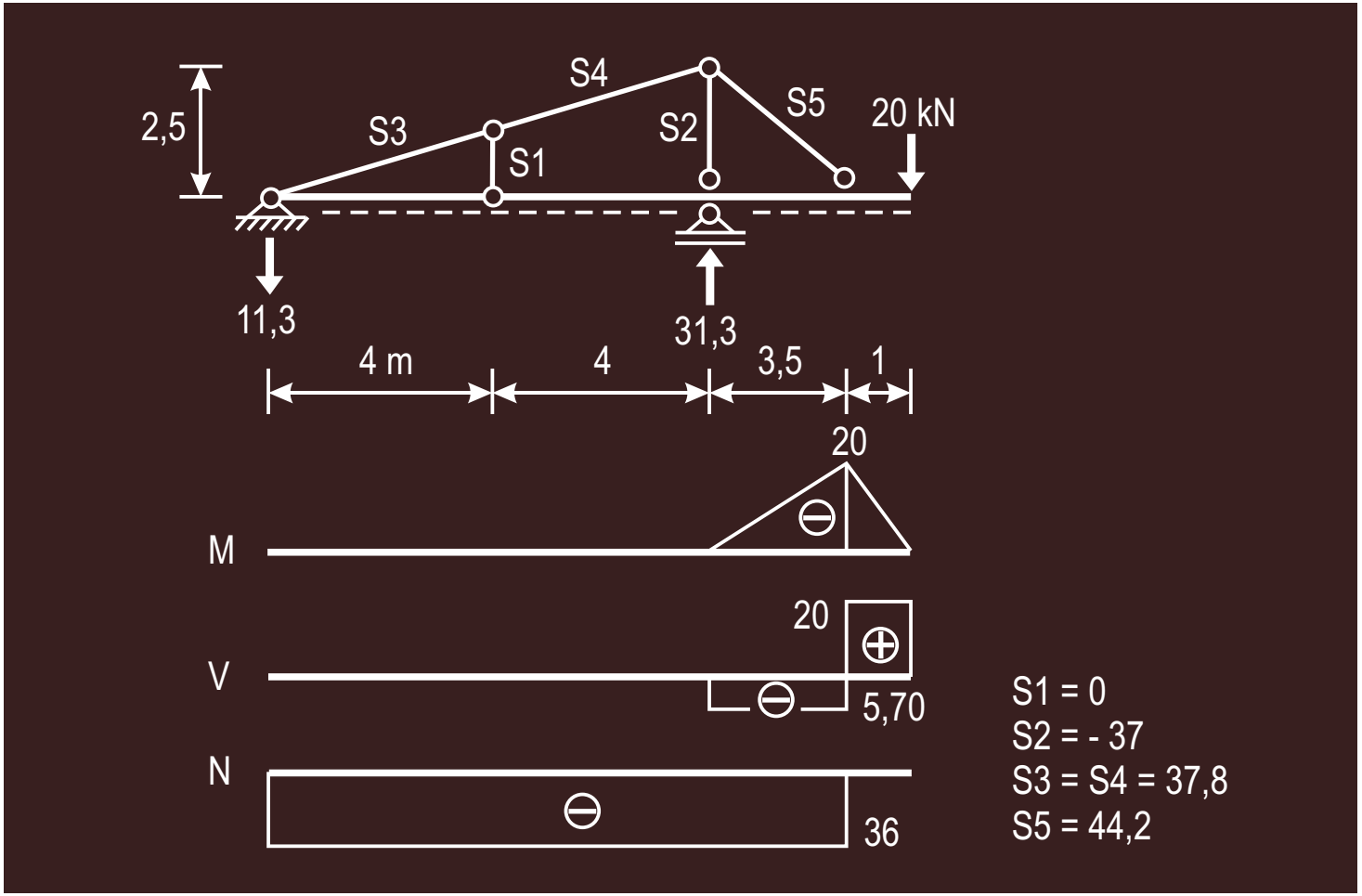

S4
S5
S3
S1
S2
50 kN
1
2
25
4 m
4
2
2
4
4
25
66,8
50,4
50,4
66,8
M
25
4,20
16,7
V
16,7
25
4,20
83,3
N
S1 = S2 = 20,8
S3 = - 93,2
S4 = - 85,9
S5 = - 83,3

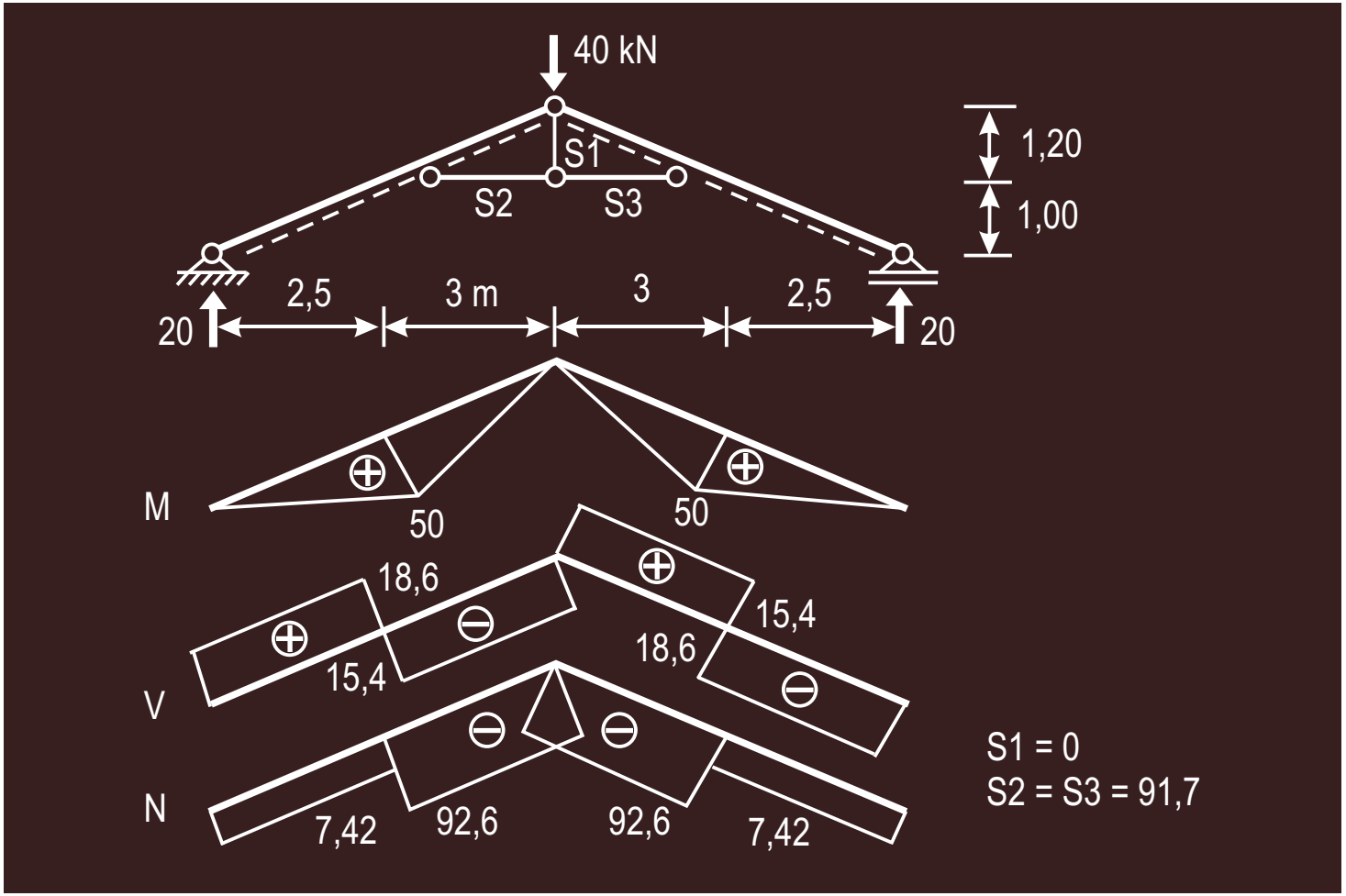


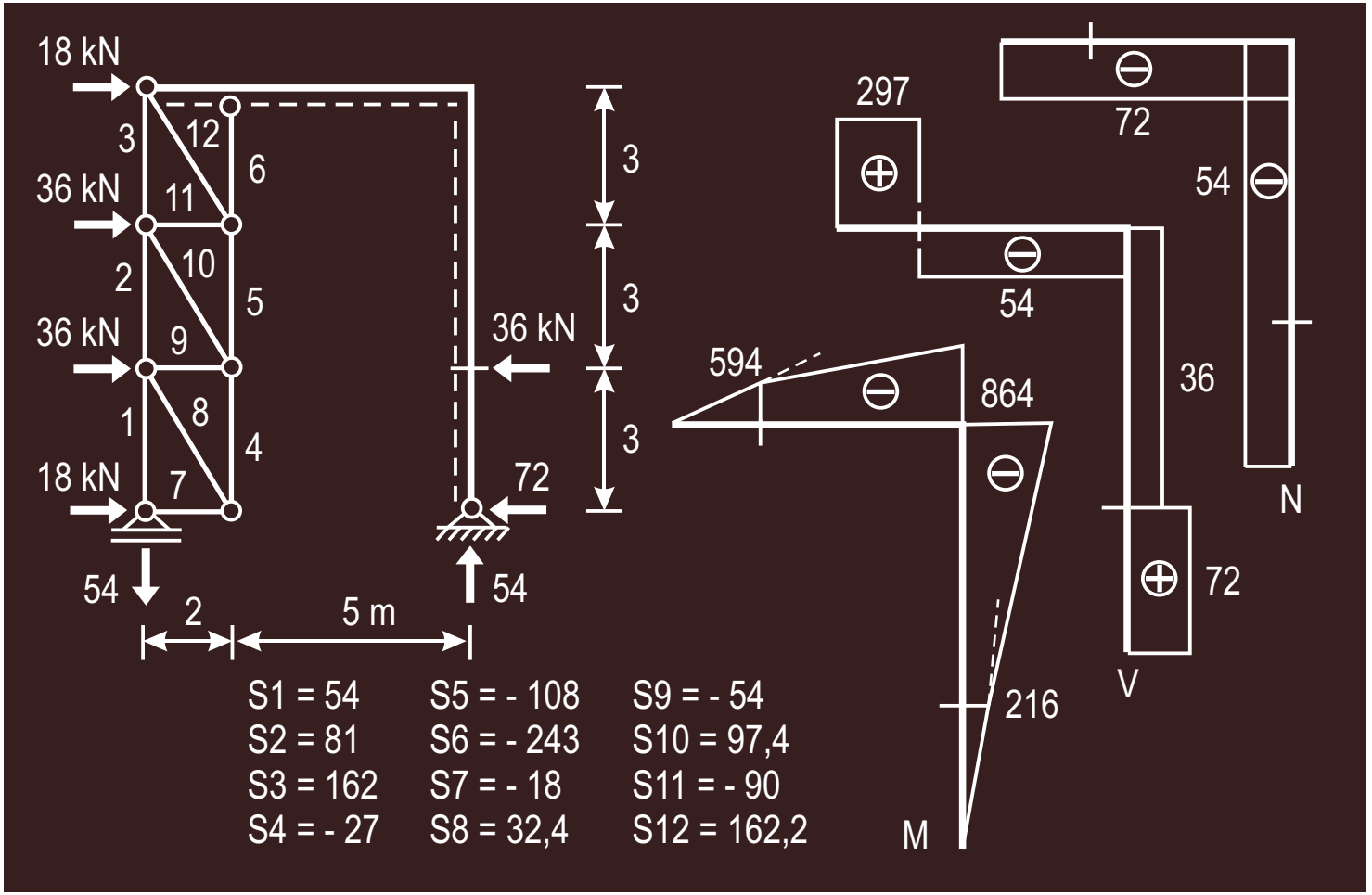
Stab	1	2	3	4	5	6
V	12,9	- 96,4	- 96,4	- 85,1	- 85,1	25,8
D	- 19,8	0	0	- 19,8	0	19,8

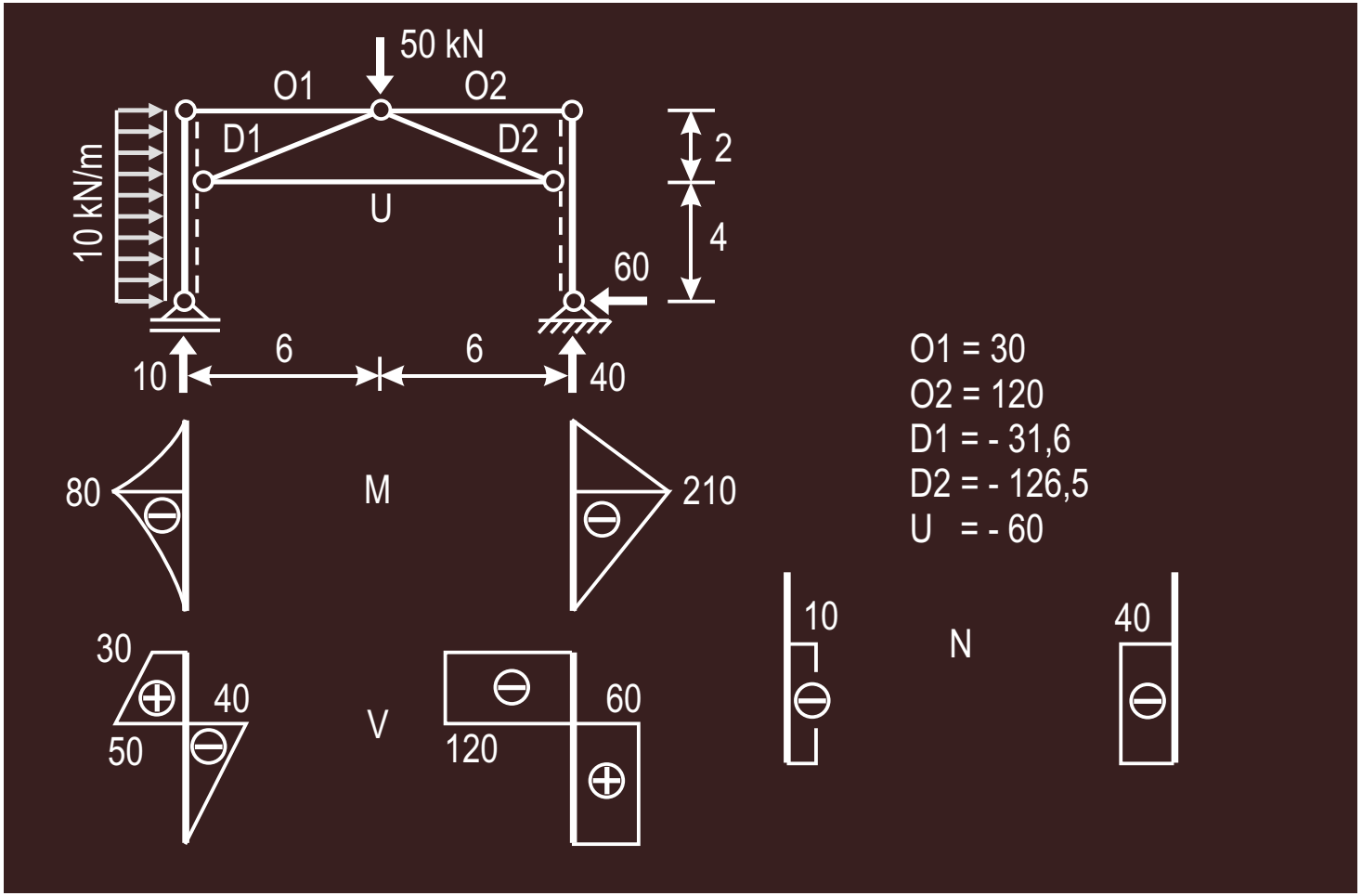

16 kN
32 kN
32 kN
16 kN
15 kN
5
7
11
4
6
8
10
12
2
3
9
13
1,5
3
14 kN/m
47
36,4
59,6
2
2
2
M
78
Knick
V
62,5
5
41,5
47
N
59,6
S1 = - 36,4
S2 = - 36,4
S3 = 0
S4 = 33,9
S5 = - 11,2
S6 = - 32
S7 = - 11,2
S8 = 19,4
S9 = 11,7
S10 = - 43,6
S11 = 4,33
S12 = 72,7
S13 = - 46,5

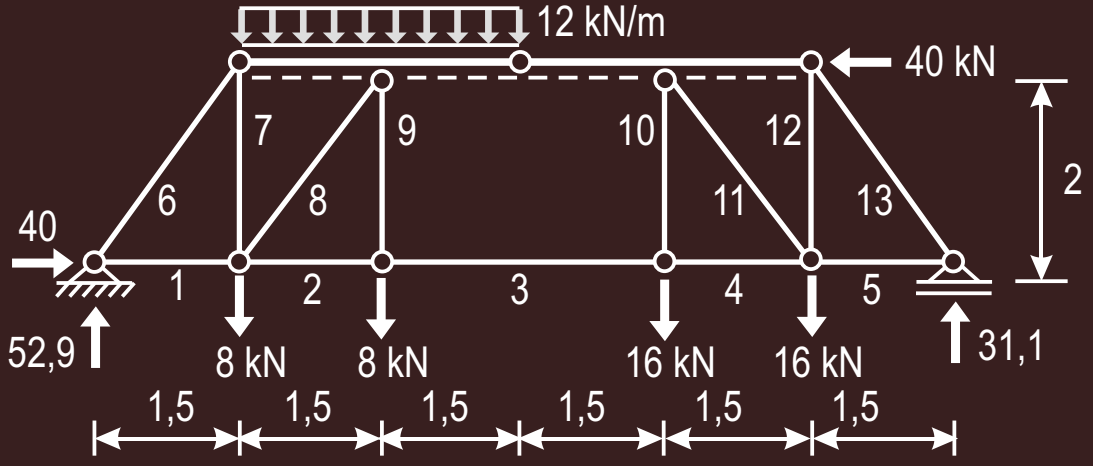

30 kN
20 kN
O1
O2
15 kN
V1
15 kN
D1
D2
V2
120 kN
2
3
30
63
5 m
5
107
M
48
135
210
15
45
69
V
51
Auf dem geknickten Träger sitzt ein Dreigelenkrahmen aus zwei Fachwerkscheiben
O1 = - 15
O2 = 0
V1 = 0
V2 = - 20
D1 = - 32,3
D2 = - 48,5
12
38
N
15

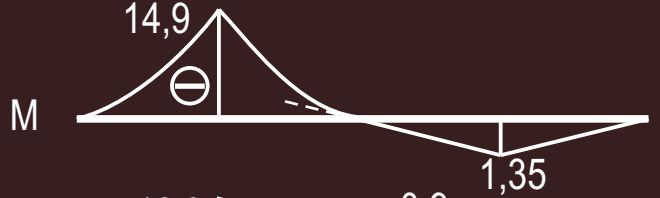

2,5
S4
S3
S1
S2
S5
20 kN
11,3
31,3
4 m
4
3,5
1
20
M
20
V
5,70
N
36
S1 = 0
S2 = - 37
S3 = S4 = 37,8
S5 = 44,2

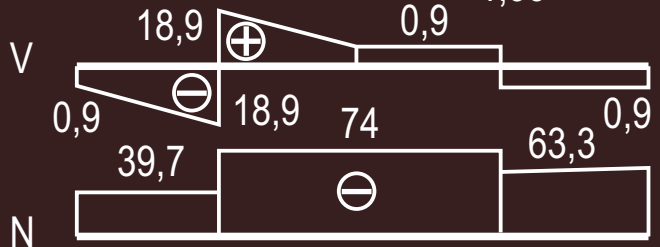

40 kN
S1
S2
S3
1,20
1,00
2,5
3 m
3
2,5
20
20
M
50
50
V
18,6
15,4
15,4
18,6
N
7,42
92,6
92,6
7,42
S1 = 0
S2 = S3 = 91,7


18 kN
36 kN
36 kN
18 kN
36 kN
72
54
54
2
5 m
3
3
3
3
1
2
3
4
5
6
7
8
9
10
11
12
S1 = 54
S2 = 81
S3 = 162
S4 = - 27
S5 = - 108
S6 = - 243
S7 = - 18
S8 = 32,4
S9 = - 54
S10 = 97,4
S11 = - 90
S12 = 162,2
297
72
54
54
36
72
N
594
864
216
M
V

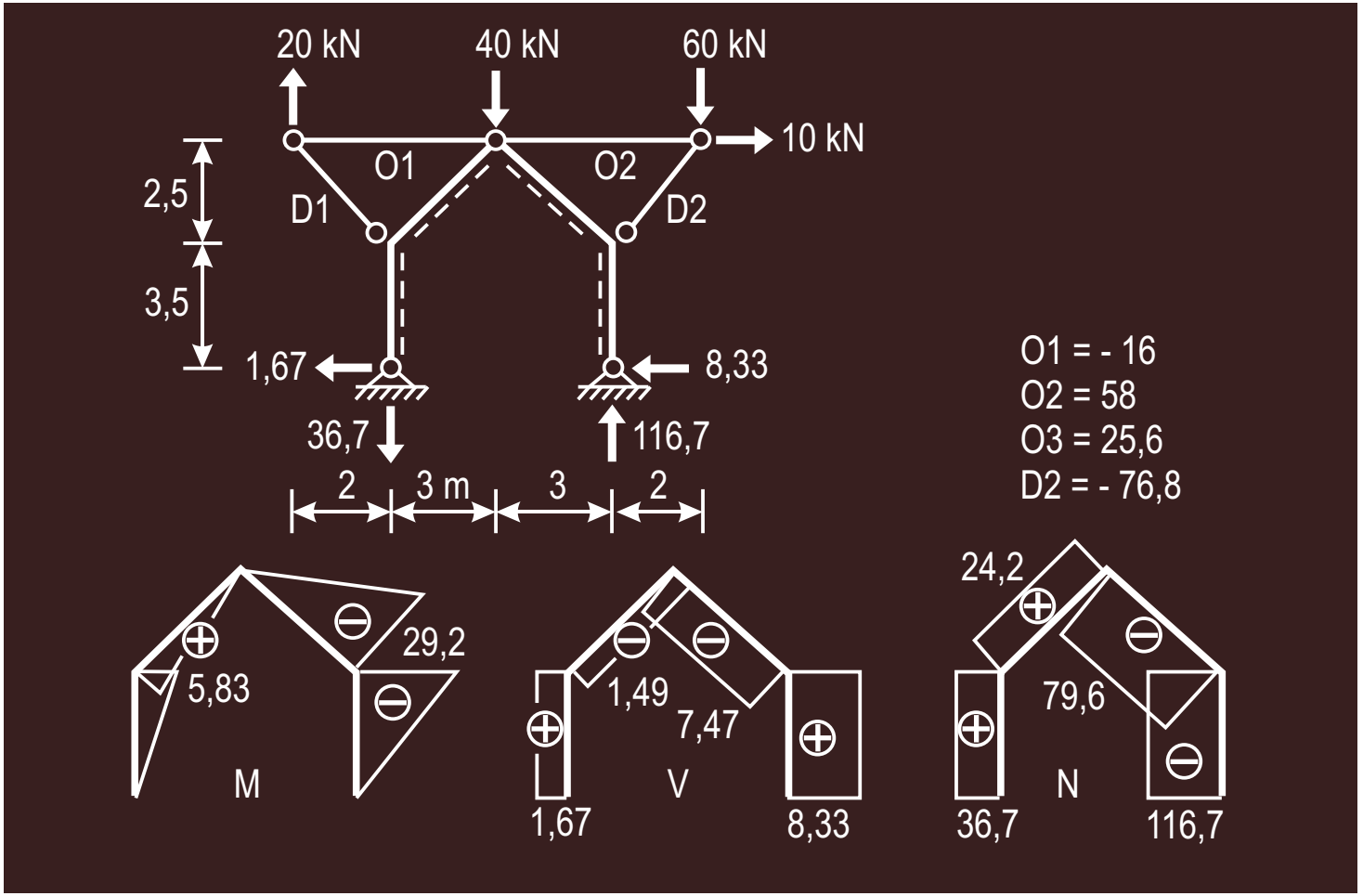

50 kN
O1
O2
D1
D2
U
10 kN/m
2
4
60
10
6
6
40
80
M
210
O1 = 30
O2 = 120
D1 = - 31,6
D2 = - 126,5
U = - 60
30
40
50
V
60
120
10
N
40

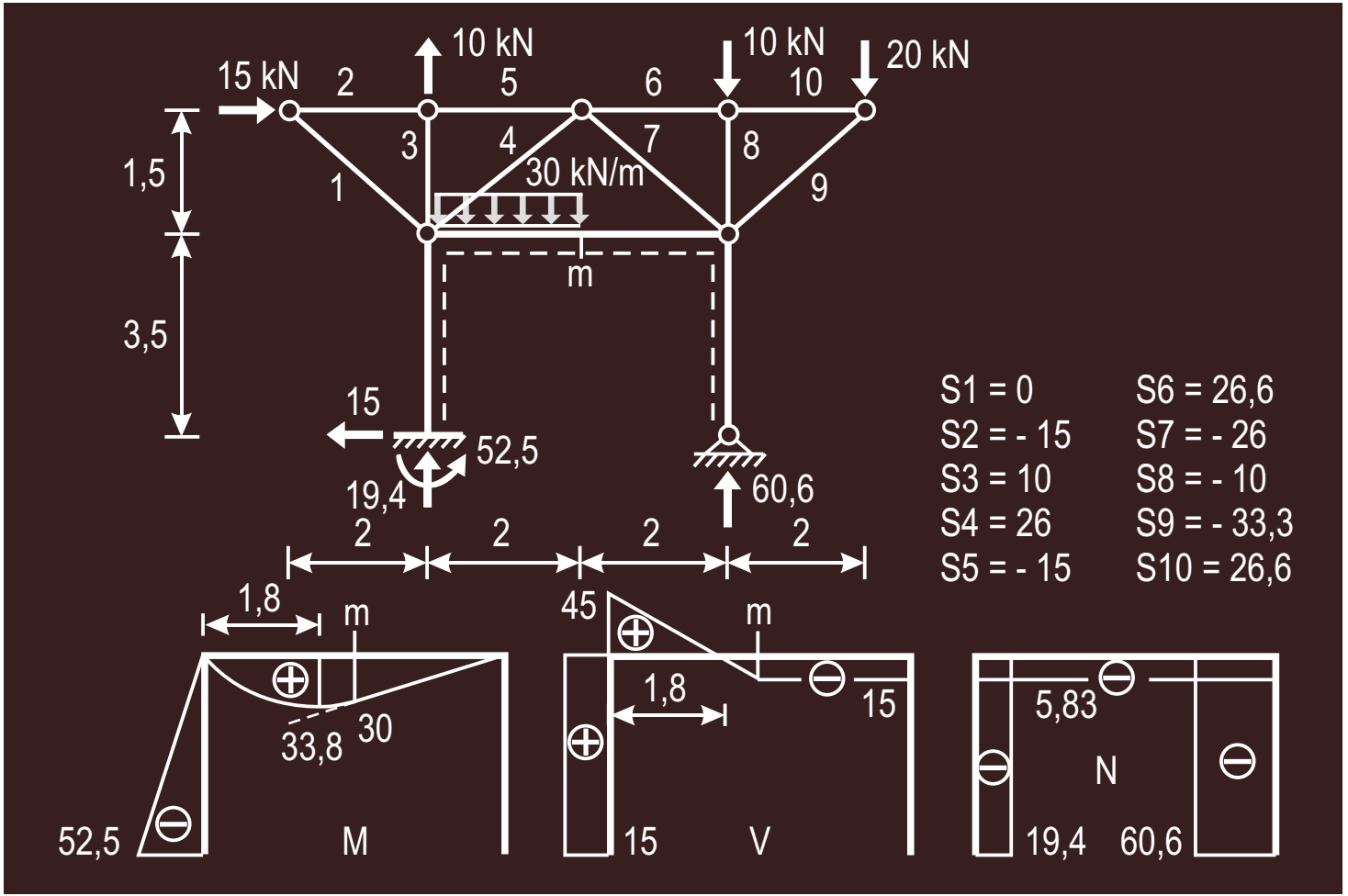






S1 = - 0,33
S2 = 34
S3 = 34
S4 = 34
S5 = 23,3
S6 = - 66,1
S7 = 53,8
S8 = -57,2
S9 = 8
S10 = 16
S11 = - 17,8
S12 = 30,2
S13 = - 38,9


20 kN
40 kN
60 kN
10 kN
O1
O2
D1
D2
2,5
3,5
1,67
8,33
36,7
116,7
2
3 m
3
2
O1 = - 16
O2 = 58
O3 = 25,6
D2 = - 76,8
5,83
29,2
M
1,49
7,47
V
1,67
8,33
24,2
79,6
N
36,7
116,7


15 kN
10 kN
10 kN
20 kN
2
5
6
10
3
4
7
8
1
9
30 kN/m
1,5
3,5
m
15
52,5
19,4
60,6
2
2
2
2
S1 = 0
S2 = - 15
S3 = 10
S4 = 26
S5 = - 15
S6 = 26,6
S7 = - 26
S8 = - 10
S9 = - 33,3
S10 = 26,6
1,8
m
33,8
30
52,5
M
45
m
1,8
15
15
V
5,83
N
19,4
60,6