

## Составная конструкция

Определить реакции опор конструкции (в кН), состоящей из двух тел.

Кирсанов М.Н. **Решebник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2002.– 384 с. (с.67.)

**Задача 7.1.** 6

$P = 5 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 14 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.2.** 6

$P = 7 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 14 \text{ м}, CD = 4 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}. LC =$   
 $10 \text{ м}.$

**Задача 7.3.** 6

$P = 6 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 9 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.4.** 6

$P = 6 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 7 \text{ м}, CD = 10 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}. LD = 2 \text{ м}$

**Задача 7.5.** 6

$P = 6 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 3 \text{ м}, BC = 7 \text{ м}, CD = 11 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.6.** 6

$P = 7 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 6 \text{ м}, BC = 6 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.7.** 6

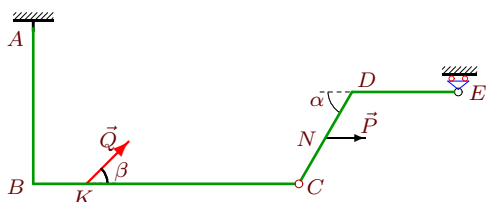
$P = 9 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 5 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 3 \text{ м}.$

**Задача 7.8.** 6

$P = 7 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 8 \text{ м}, CD = 7 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}. LC = 2 \text{ м}.$

**Задача 7.9.**

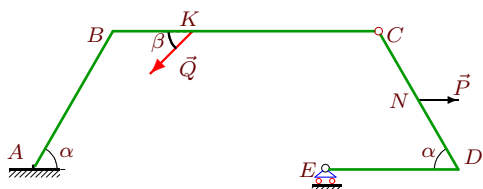
6



$P = 6 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 10 \text{ м}, CD = 4 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.11.**

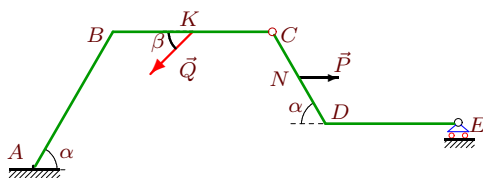
6



$P = 6 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 10 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.13.**

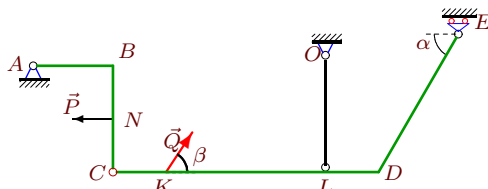
6



$P = 6 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 6 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.15.**

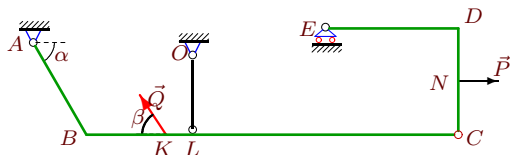
6



$P = 8 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 3 \text{ м}, BC = 4 \text{ м}, CD = 10 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.17.**

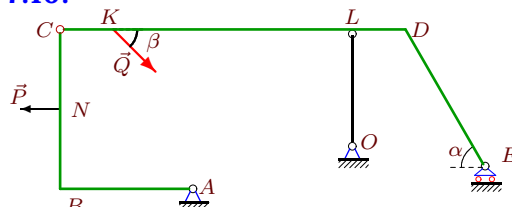
6



$P = 8 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 14 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}, LC = 10 \text{ м}.$

**Задача 7.10.**

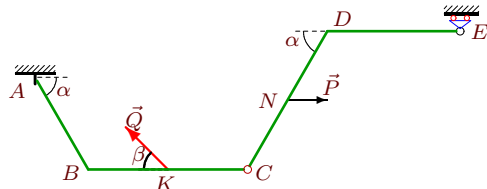
6



$P = 5 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 13 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.12.**

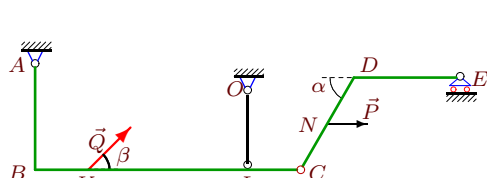
6



$P = 7 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.14.**

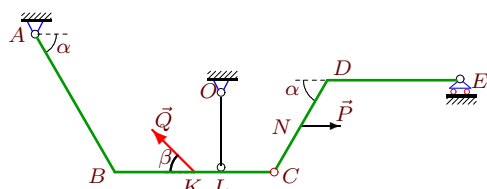
6



$P = 6 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 10 \text{ м}, CD = 4 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}, LC = 2 \text{ м}.$

**Задача 7.16.**

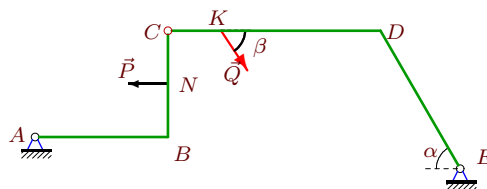
6



$P = 5 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 6 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}, LC = 2 \text{ м}.$

**Задача 7.18.**

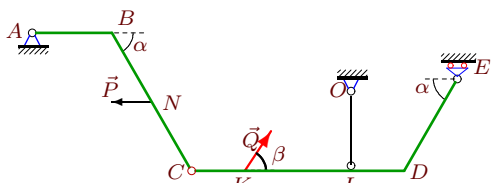
6



$P = 6 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 8 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.19.**

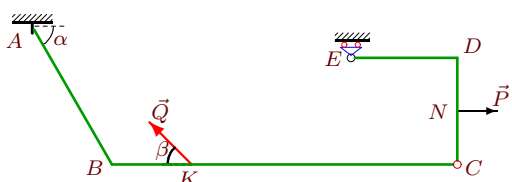
6



$P = 8 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 3 \text{ м}, BC = 6 \text{ м}, CD = 8 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}. LD = 2 \text{ м}$

**Задача 7.21.**

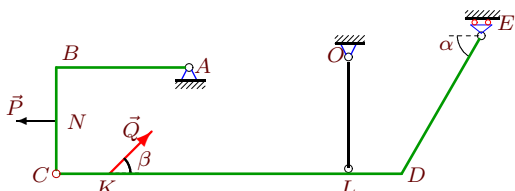
6



$P = 6 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 13 \text{ м}, CD = 4 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.23.**

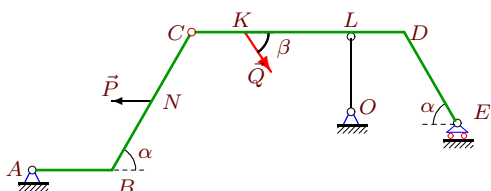
6



$P = 5 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 13 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}. LD = 2 \text{ м}$

**Задача 7.25.**

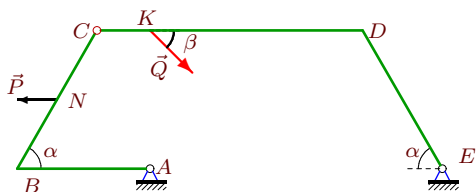
6



$P = 8 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 3 \text{ м}, BC = 6 \text{ м}, CD = 8 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}. LD = 2 \text{ м}$

**Задача 7.27.**

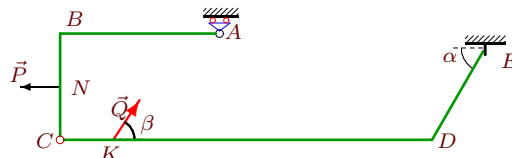
6



$P = 5 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 10 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.20.**

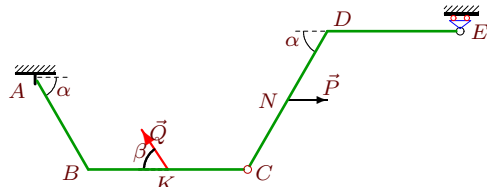
6



$P = 8 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 6 \text{ м}, BC = 4 \text{ м}, CD = 14 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.22.**

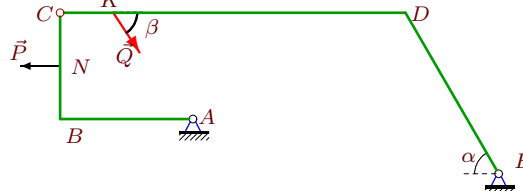
6



$P = 8 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.24.**

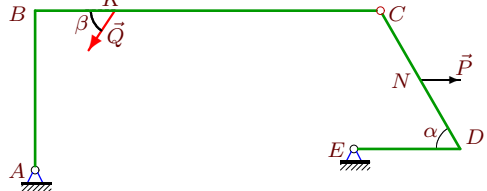
6



$P = 7 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 13 \text{ м},$   
 $DE = 7 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.26.**

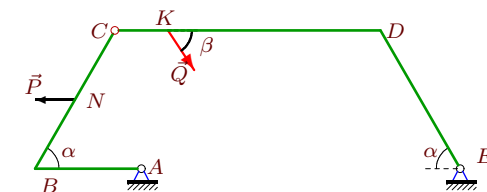
6



$P = 6 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 6 \text{ м}, BC = 13 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.28.**

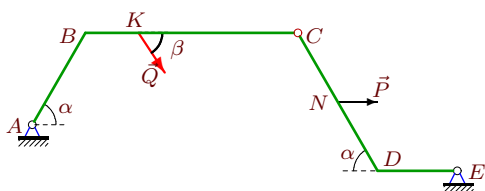
6



$P = 6 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 10 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.29.**

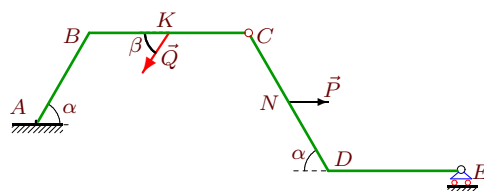
6



$P = 6 \text{ кН}, Q = 5 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 8 \text{ м}, CD = 6 \text{ м},$   
 $DE = 3 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.30.**

6



$P = 8 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

**Составная конструкция**

	$X_A$	$Y_A$	$X_E$	$Y_E$	$S_{OL}$	$M$	$X_C$	$Y_C$
1	-1.838	-5.205	1.181	-0.451	—		6.838	5.205
2	-6.500	-2.225	—	-3.500	4.859		7.000	-3.500
3	-2.931	3.413	-6.569	2.650	—		-0.569	2.650
4	0.343	-3.899	—	-16.284	25.841		5.657	3.899
5	4.768	5.125	-2.768	1.803	—		1.232	-5.125
6	1.265	2.018	-7.229	1.846	—		-0.229	1.846
7	—	-2.923	9.776	5.821	—	-88.672	9.000	2.923
8	-11.000	-3.428	—	-2.140	12.496		7.000	-2.140
9	-12.062	-5.232	—	1.732	—	-96.694	6.000	1.732
10	-1.062	4.275	—	3.104	-3.879		6.062	-4.275
11	-2.536	-5.794	—	7.794	—	-76.148	6.000	7.794
12	-2.757	-6.516	—	2.273	—	-48.952	7.000	2.273
13	-0.804	4.485	—	-1.485	—	35.538	6.000	-1.485
14	-10.243	2.372	—	1.732	-8.347		6.000	1.732
15	5.929	-2.573	—	5.157	-10.312		2.071	2.573
16	0.196	-0.221	—	1.237	-4.016		5.000	1.237
17	-7.482	-1.335	—	-3.200	2.604		8.000	-3.200
18	6.713	2.970	-4.213	3.092	—		-0.713	-2.970
19	6.965	-2.568	—	0.012	-1.309		1.035	2.568
20	—	-2.667	4.500	-3.396	—	57.792	8.000	2.667
21	-5.134	2.500	—	-3.000	—	18.323	6.000	-3.000
22	-6.000	-6.062	—	2.598	—	-58.890	8.000	2.598
23	-1.928	-3.543	—	-0.594	0.136		6.928	3.543
24	-13.412	13.529	18.341	-5.802	—		20.412	-13.529
25	7.224	2.792	—	1.290	-1.184		0.776	-2.792
26	0.760	5.680	-2.760	1.248	—		3.240	1.248
27	1.615	2.300	1.264	-0.179	—		3.385	-2.300
28	2.417	3.031	2.083	-0.433	—		3.583	-3.031
29	-2.500	1.732	-6.000	2.598	—		0.000	2.598
30	-6.000	6.062	—	-2.598	—	58.890	8.000	-2.598