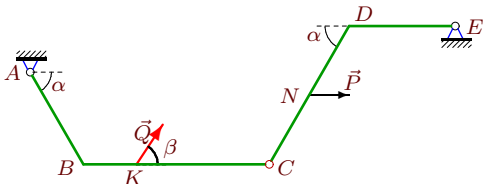


## Составная конструкция

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

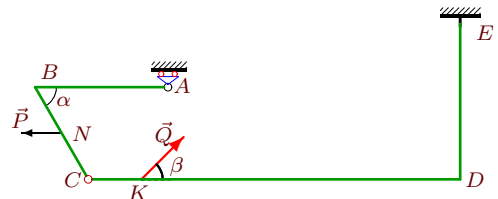
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2002.– 384 с. (с.67.)

### Задача 7.1.



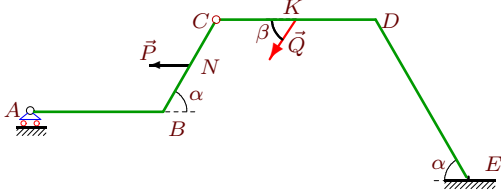
$P = 7 \text{ кН}, Q = 5 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 7 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

### Задача 7.2.



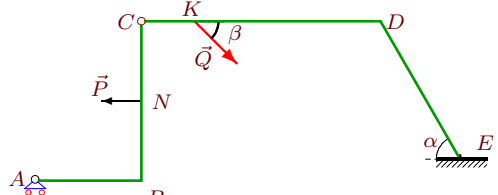
$P = 6 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 14 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

### Задача 7.3.



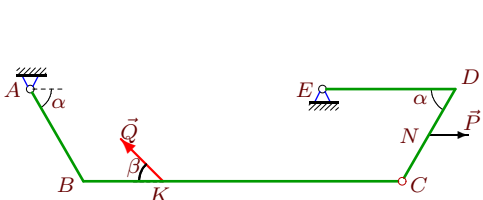
$P = 8 \text{ кН}, Q = 5 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 6 \text{ м},$   
 $DE = 7 \text{ м}, CN = 2 \text{ м}, CK = 3 \text{ м}.$

### Задача 7.4.



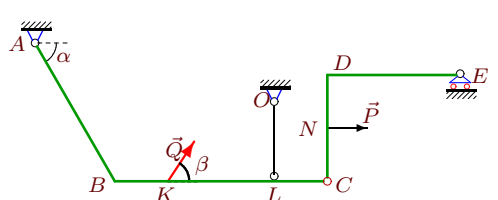
$P = 7 \text{ кН}, Q = 9 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 9 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

### Задача 7.5.



$P = 5 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 12 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

### Задача 7.6.



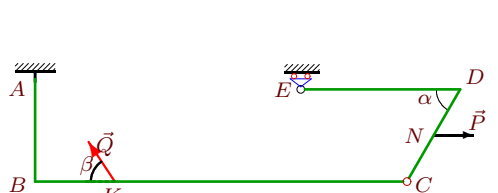
$P = 7 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 6 \text{ м}, BC = 8 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}, LC = 2 \text{ м}.$

### Задача 7.7.



$P = 7 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 7 \text{ м}, BC = 14 \text{ м}, CD = 4 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

### Задача 7.8.



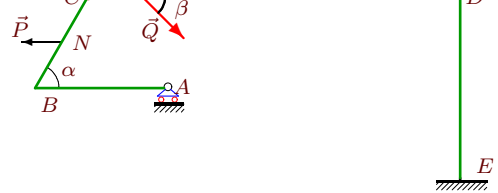
$P = 9 \text{ кН}, Q = 9 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 14 \text{ м}, CD = 4 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

### Задача 7.9.



$P = 7 \text{ кН}, Q = 9 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 6 \text{ м}, BC = 13 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}.$

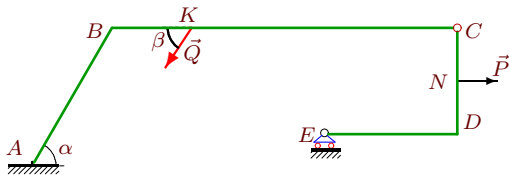
### Задача 7.10.



$P = 6 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 14 \text{ м},$   
 $DE = 7 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.11.**

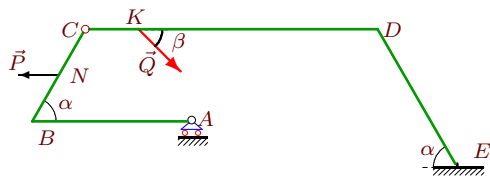
7



$P = 9 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 6 \text{ м}, BC = 13 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}.$

**Задача 7.13.**

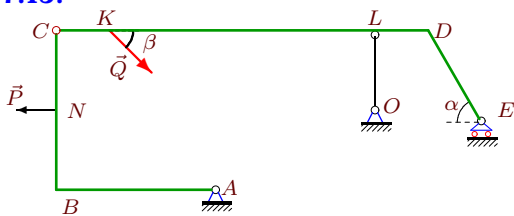
7



$P = 6 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 4 \text{ м}, CD = 11 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.15.**

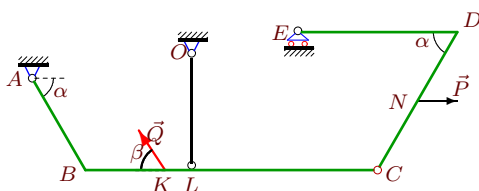
7



$P = 6 \text{ кН}, Q = 9 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 6 \text{ м}, BC = 6 \text{ м}, CD = 14 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.17.**

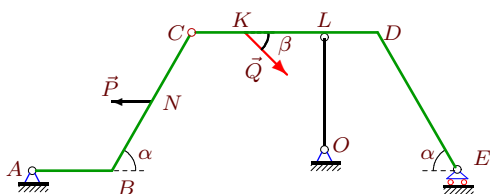
7



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

**Задача 7.19.**

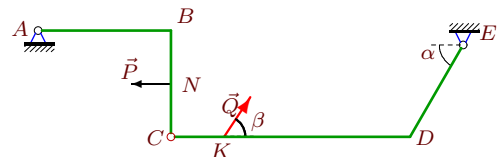
7



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

**Задача 7.12.**

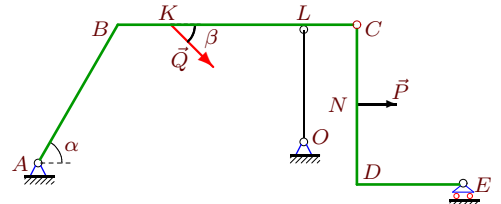
7



$P = 6 \text{ кН}, Q = 9 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 9 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.14.**

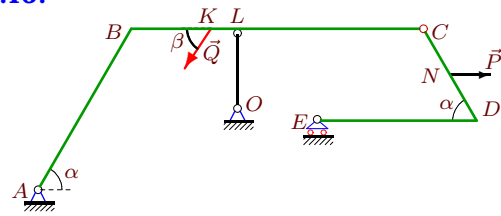
7



$P = 5 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 9 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}, LC = 2 \text{ м}.$

**Задача 7.16.**

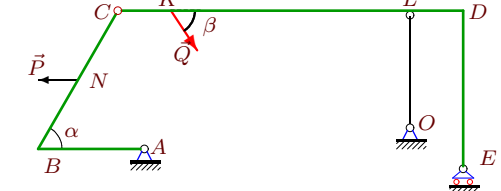
7



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

**Задача 7.18.**

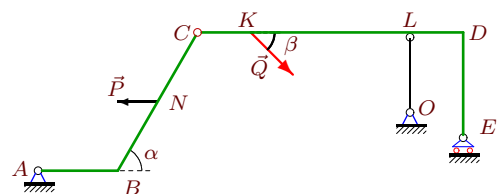
7



$P = 7 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 13 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

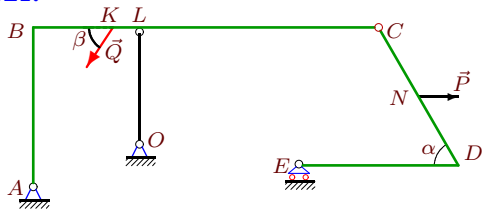
**Задача 7.20.**

7



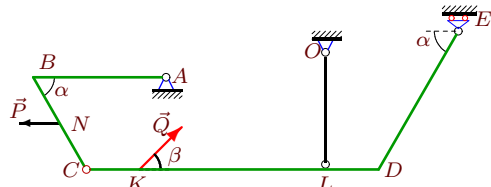
$P = 5 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 3 \text{ м}, BC = 6 \text{ м}, CD = 10 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.21.**



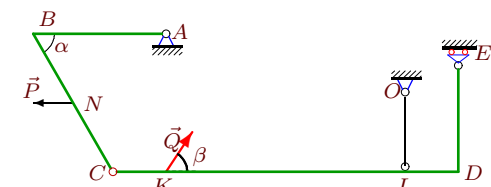
$P = 8 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 6 \text{ м}, BC = 13 \text{ м}, CD = 6 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}, LC = 9 \text{ м}.$

**Задача 7.23.**



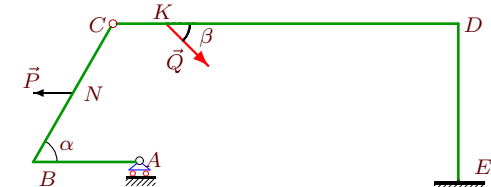
$P = 5 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 11 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.25.**



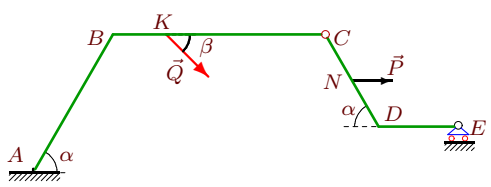
$P = 7 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 13 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.27.**



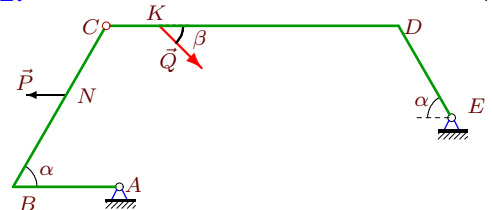
$P = 7 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 13 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.29.**



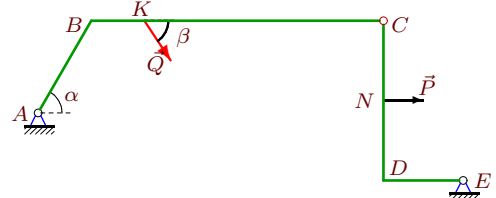
$P = 7 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 6 \text{ м}, BC = 8 \text{ м}, CD = 4 \text{ м},$   
 $DE = 3 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.22.**



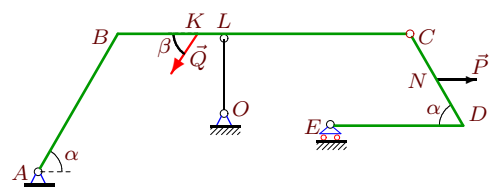
$P = 4 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 4 \text{ м}, BC = 7 \text{ м}, CD = 11 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.24.**



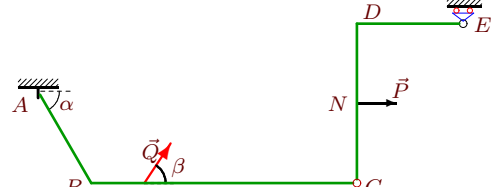
$P = 6 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 11 \text{ м}, CD = 6 \text{ м},$   
 $DE = 3 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.26.**



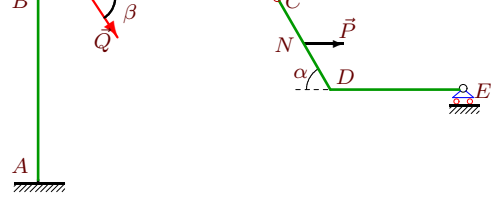
$P = 7 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 6 \text{ м}, BC = 11 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}, LC = 7 \text{ м}.$

**Задача 7.28.**



$P = 8 \text{ кН}, Q = 1 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 10 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.30.**



$P = 8 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 7 \text{ м}, BC = 9 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}.$

**Составная конструкция**

	$X_A$	$Y_A$	$X_E$	$Y_E$	$S_{OL}$	$M$	$X_C$	$Y_C$
1	-1.253	-2.201	-7.041	-2.629	—		-0.041	-2.629
2	—	-3.464	5.134	2.964	—	-11.694	6.000	3.464
3	—	-1.979	10.500	6.310	—	-110.604	8.000	1.979
4	—	-5.250	0.636	11.614	—	-129.945	7.000	5.250
5	-0.695	-1.646	-1.476	-1.182	—		3.524	-1.182
6	-8.000	4.471	—	2.800	-9.003		7.000	2.800
7	-2.050	-1.112	—	6.062	—	-55.669	7.000	6.062
8	-6.671	-4.796	—	-3.897	—	1.797	9.000	-3.897
9	-0.636	-2.729	—	9.093	—	-95.304	7.000	9.093
10	—	3.464	5.134	-2.964	—	6.560	6.000	-3.464
11	-8.482	-1.668	—	3.600	—	-1.933	9.000	3.600
12	8.296	-4.237	-6.796	-3.557	—		-2.296	4.237
13	—	2.598	0.804	0.402	—	-3.804	6.000	-2.598
14	-6.732	-3.748	—	-3.750	8.498		5.000	-3.750
15	-0.364	3.364	—	-5.818	8.818		6.364	-3.364
16	-4.000	0.289	—	3.031	1.876		7.000	3.031
17	-5.500	-4.330	—	-6.062	7.794		7.000	-6.062
18	6.000	-12.990	—	-79.241	93.964		1.000	12.990
19	3.172	0.149	—	-1.548	4.228		2.828	-0.149
20	4.134	1.415	—	4.160	-5.075		0.866	-1.415
21	-6.447	7.367	—	6.928	-8.499		8.000	6.928
22	1.598	1.409	-1.062	0.591	—		2.402	-1.409
23	1.536	-1.113	—	0.796	-1.683		3.464	1.113
24	-3.295	0.321	-3.705	1.411	—		2.295	1.411
25	6.000	6.495	—	43.518	-51.745		1.000	-6.495
26	-5.500	0.330	—	4.041	-1.773		7.000	4.041
27	—	18.187	5.586	-16.772	—	187.354	7.000	-18.187
28	-8.500	-6.866	—	6.000	—	-104.909	8.000	6.000
29	-9.121	4.546	—	-2.425	—	84.676	7.000	-2.425
30	-12.000	8.908	—	-1.979	—	115.672	8.000	-1.979