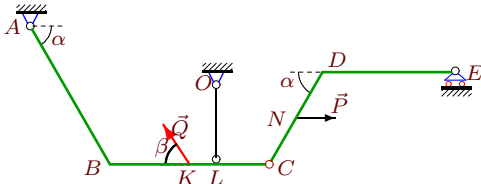


## Составная конструкция

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.



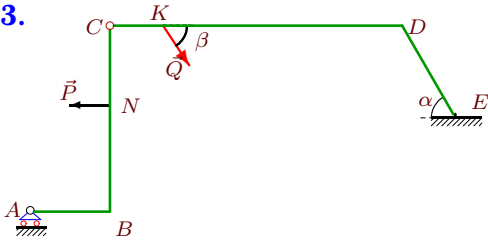
$P = 7$  кН,  $Q = 5$  кН,  $\alpha = 60^\circ$ ,  $\beta = 60^\circ$ ,  
 $AB = 6$  м,  $BC = 6$  м,  $CD = 4$  м,  
 $DE = 5$  м,  $CN = 2$  м,  $BK = 3$  м.  $LC = 2$  м.

### Задача 7.2.



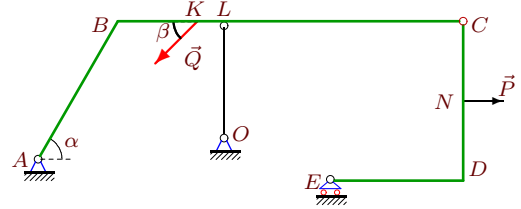
$P = 5$  кН,  $Q = 8$  кН,  $\alpha = 60^\circ$ ,  $\beta = 45^\circ$ ,  
 $AB = 4$  м,  $BC = 11$  м,  $CD = 4$  м,  
 $DE = 3$  м,  $CN = 2$  м,  $BK = 2$  м.

### Задача 7.3.



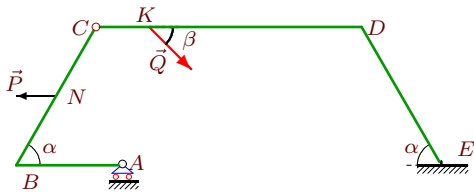
$P = 9$  кН,  $Q = 8$  кН,  $\alpha = 60^\circ$ ,  $\beta = 75^\circ$ ,  
 $AB = 3$  м,  $BC = 7$  м,  $CD = 11$  м,  
 $DE = 4$  м,  $CN = 3$  м,  $CK = 2$  м.

### Задача 7.4.



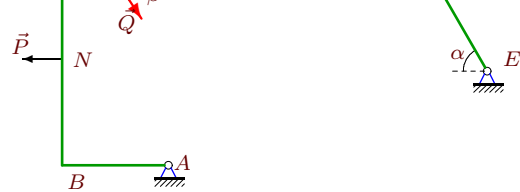
$P = 5$  кН,  $Q = 2$  кН,  $\alpha = 60^\circ$ ,  $\beta = 30^\circ$ ,  
 $AB = 6$  м,  $BC = 13$  м,  $CD = 6$  м,  
 $DE = 5$  м,  $CN = 3$  м,  $BK = 3$  м.  $LC = 9$  м.

### Задача 7.5.



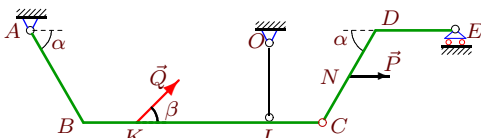
$P = 6$  кН,  $Q = 6$  кН,  $\alpha = 60^\circ$ ,  $\beta = 30^\circ$ ,  
 $AB = 4$  м,  $BC = 6$  м,  $CD = 10$  м,  
 $DE = 6$  м,  $CN = 3$  м,  $CK = 2$  м.

### Задача 7.6.



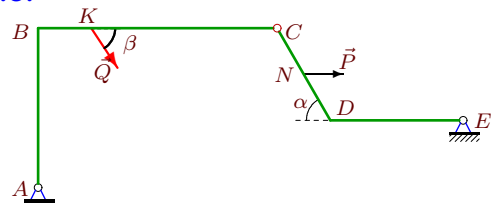
$P = 6$  кН,  $Q = 6$  кН,  $\alpha = 60^\circ$ ,  $\beta = 60^\circ$ ,  
 $AB = 4$  м,  $BC = 7$  м,  $CD = 14$  м,  
 $DE = 4$  м,  $CN = 3$  м,  $CK = 2$  м.

### Задача 7.7.



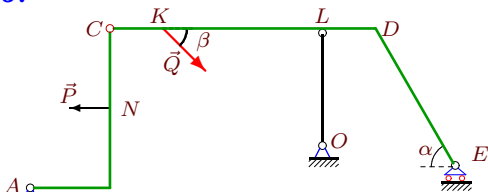
$P = 5$  кН,  $Q = 5$  кН,  $\alpha = 60^\circ$ ,  $\beta = 30^\circ$ ,  
 $AB = 4$  м,  $BC = 9$  м,  $CD = 4$  м,  
 $DE = 3$  м,  $CN = 2$  м,  $BK = 2$  м.  $LC = 2$  м.

### Задача 7.8.



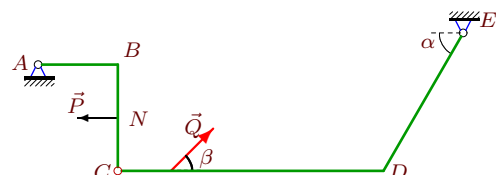
$P = 7$  кН,  $Q = 7$  кН,  $\alpha = 60^\circ$ ,  $\beta = 75^\circ$ ,  
 $AB = 6$  м,  $BC = 9$  м,  $CD = 4$  м,  
 $DE = 5$  м,  $CN = 2$  м,  $BK = 2$  м.

### Задача 7.9.



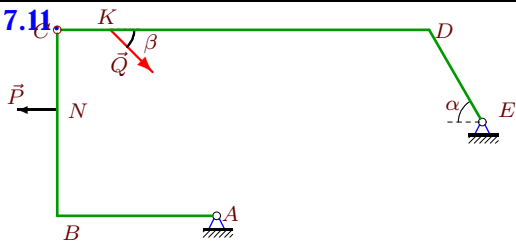
$P = 5$  кН,  $Q = 7$  кН,  $\alpha = 60^\circ$ ,  $\beta = 30^\circ$ ,  
 $AB = 3$  м,  $BC = 6$  м,  $CD = 10$  м,  
 $DE = 6$  м,  $CN = 3$  м,  $CK = 2$  м.  $LD = 2$  м.

### Задача 7.10.



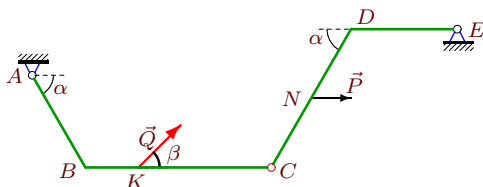
$P = 4$  кН,  $Q = 7$  кН,  $\alpha = 60^\circ$ ,  $\beta = 30^\circ$ ,  
 $AB = 3$  м,  $BC = 4$  м,  $CD = 10$  м,  
 $DE = 6$  м,  $CN = 2$  м,  $CK = 2$  м.

**Задача 7.11.**



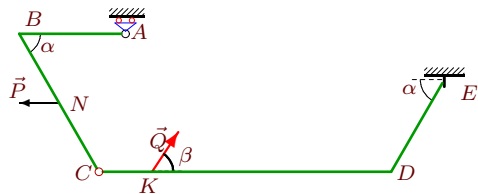
$P = 4 \text{ кН}, Q = 7 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 7 \text{ м}, CD = 14 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.13.**



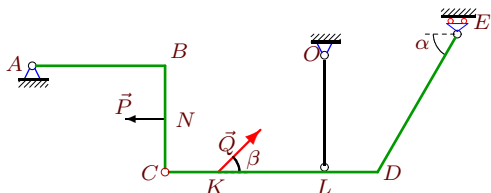
$P = 5 \text{ кН}, Q = 5 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 4 \text{ м}, BC = 7 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.15.**



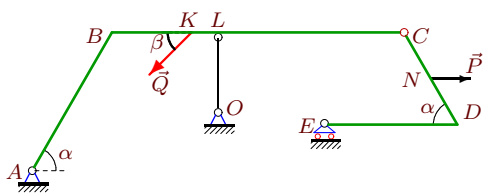
$P = 9 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 6 \text{ м}, CD = 11 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.17.**



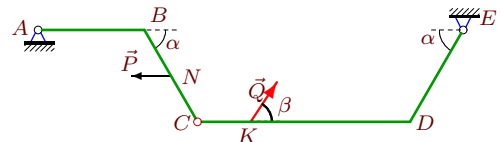
$P = 6 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 5 \text{ м}, BC = 4 \text{ м}, CD = 8 \text{ м},$   
 $DE = 6 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}, LD = 2 \text{ м}.$

**Задача 7.19.**



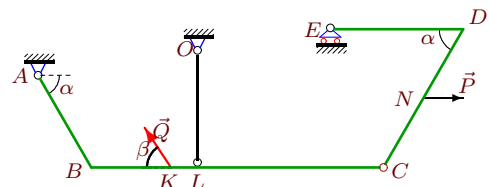
$P = 6 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 45^\circ,$   
 $AB = 6 \text{ м}, BC = 11 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 3 \text{ м}, LC = 7 \text{ м}.$

**Задача 7.12.**



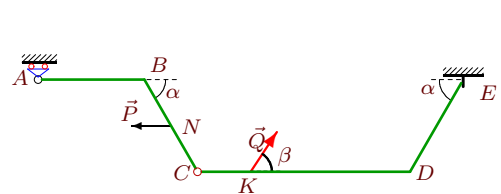
$P = 7 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 4 \text{ м}, CD = 8 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.14.**



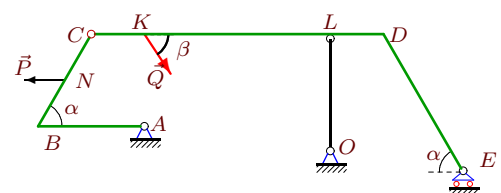
$P = 7 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 11 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}, LC = 7 \text{ м}.$

**Задача 7.16.**



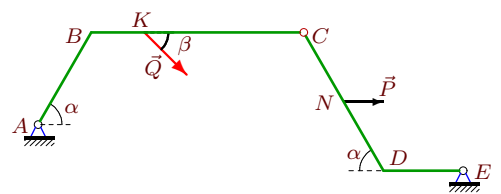
$P = 8 \text{ кН}, Q = 4 \text{ кН}, \alpha = 60^\circ, \beta = 60^\circ,$   
 $AB = 4 \text{ м}, BC = 4 \text{ м}, CD = 8 \text{ м},$   
 $DE = 4 \text{ м}, CN = 2 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.18.**



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

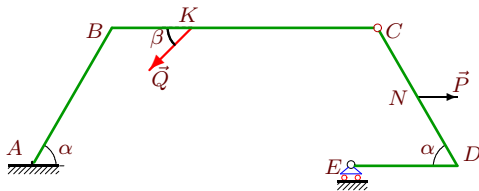
**Задача 7.20.**



$P = 4 \text{ кН}, Q = 5 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 4 \text{ м}, BC = 8 \text{ м}, CD = 6 \text{ м},$   
 $DE = 3 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.21.**

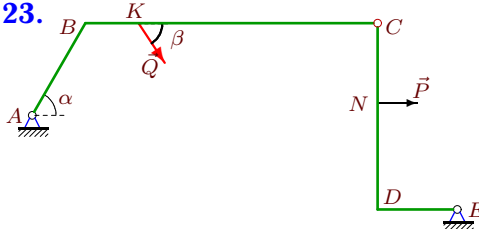
4



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

**Задача 7.23.**

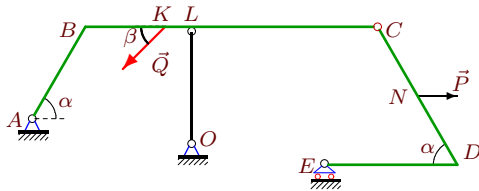
4



$P = 7 \text{ кН}, Q = 2 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 11 \text{ м}, CD = 7 \text{ м},$   
 $DE = 3 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.25.**

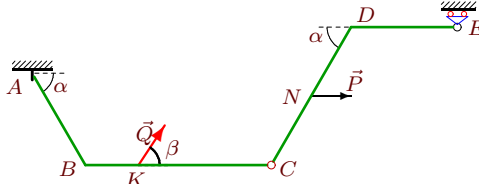
4



$P = 5 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 4 \text{ м}, BC = 11 \text{ м}, CD = 6 \text{ м},$   
 $DE = 5 \text{ м}, CN = 3 \text{ м}, BK = 3 \text{ м}, LC = 7 \text{ м}.$

**Задача 7.27.**

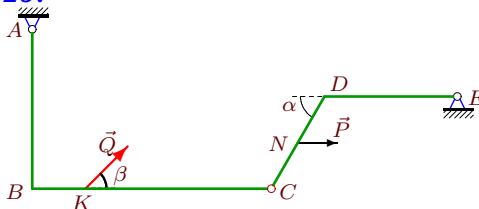
4



$P = 9 \text{ кН}, Q = 3 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 4 \text{ м}, BC = 7 \text{ м}, CD = 6 \text{ м},$   
 $DE = 4 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.29.**

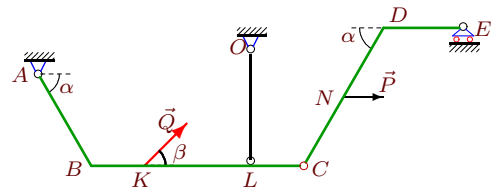
4



$P = 4 \text{ кН}, Q = 8 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 6 \text{ м}, BC = 9 \text{ м}, CD = 4 \text{ м},$   
 $DE = 5 \text{ м}, CN = 2 \text{ м}, BK = 2 \text{ м}.$

**Задача 7.22.**

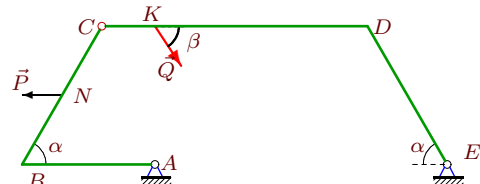
4



$P = 5 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 30^\circ,$   
 $AB = 4 \text{ м}, BC = 8 \text{ м}, CD = 6 \text{ м},$   
 $DE = 3 \text{ м}, CN = 3 \text{ м}, BK = 2 \text{ м}, LC = 2 \text{ м}.$

**Задача 7.24.**

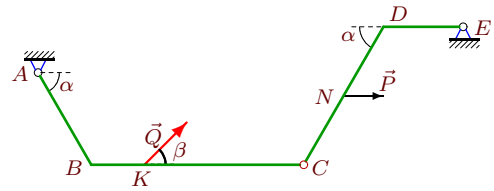
4



$P = 7 \text{ кН}, Q = 6 \text{ кН}, \alpha = 60^\circ, \beta = 75^\circ,$   
 $AB = 5 \text{ м}, BC = 6 \text{ м}, CD = 10 \text{ м},$   
 $DE = 6 \text{ м}, CN = 3 \text{ м}, CK = 2 \text{ м}.$

**Задача 7.26.**

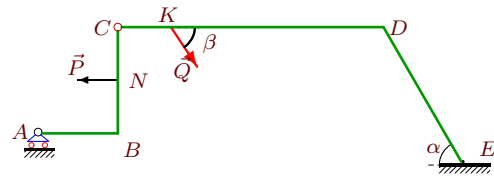
4



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

**Задача 7.28.**

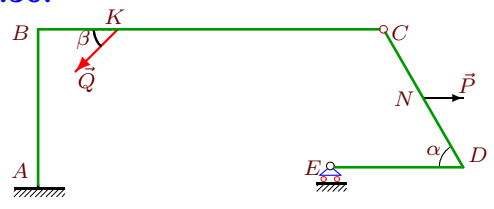
4



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

**Задача 7.30.**

4



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

**Составная конструкция**

	$X_A$	$Y_A$	$X_E$	$Y_E$	$S_{OL}$	$M$	$X_C$	$Y_C$
1	-4.500	3.217	—	1.732	-9.279		7.000	1.732
2	-4.376	-3.037	-6.281	-2.620	—		-1.281	-2.620
3	—	-9.000	6.929	16.727	—	-226.006	9.000	9.000
4	-3.268	1.574	—	3.000	-3.574		5.000	3.000
5	—	15.588	0.804	-12.588	—	165.473	6.000	-15.588
6	-0.454	5.294	3.454	-0.098	—		6.454	-5.294
7	-9.330	2.587	—	1.732	-6.819		5.000	1.732
8	-0.969	4.613	-7.842	2.149	—		-0.842	2.149
9	-1.062	-7.124	—	-15.599	26.223		6.062	7.124
10	2.772	-1.029	-4.834	-2.471	—		1.228	1.029
11	-0.648	2.756	-1.414	0.744	—		4.648	-2.756
12	9.249	-3.319	-3.802	-2.476	—		-2.249	3.319
13	-2.581	-0.971	-5.955	-2.565	—		-0.955	-2.565
14	-5.000	-8.299	—	-9.093	13.929		7.000	-9.093
15	—	-23.383	7.965	19.519	—	-233.884	9.000	23.383
16	—	2.309	6.000	-5.774	—	71.591	8.000	-2.309
17	0.343	2.125	—	7.076	-14.858		5.657	-2.125
18	4.500	-1.732	—	-9.180	15.242		2.500	1.732
19	-3.879	0.888	—	3.464	-2.231		6.000	3.464
20	-3.697	0.219	-4.633	2.281	—		-0.633	2.281
21	-4.879	-16.065	—	18.187	—	-198.347	7.000	18.187
22	-10.196	3.456	—	2.165	-8.621		5.000	2.165
23	-3.826	0.318	-3.692	1.614	—		3.308	1.614
24	0.915	6.715	4.532	-0.920	—		6.085	-6.715
25	0.196	8.191	—	6.495	-11.686		5.000	6.495
26	-2.873	-0.702	-4.956	-2.127	—		0.044	-2.127
27	-9.776	-6.238	—	3.340	—	-75.521	9.000	3.340
28	—	-5.333	4.500	11.396	—	-159.400	8.000	5.333
29	-3.039	-1.085	-7.890	-2.915	—		-3.890	-2.915
30	-0.636	-2.729	—	9.093	—	-95.304	7.000	9.093