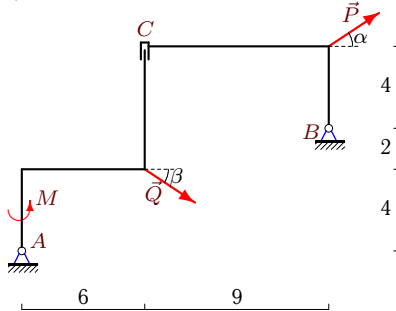


## Составная прямоугольная рама

Рама состоит из двух частей, соединенных шарниром или скользящей заделкой. Размеры даны в метрах. Найти реакции опор.

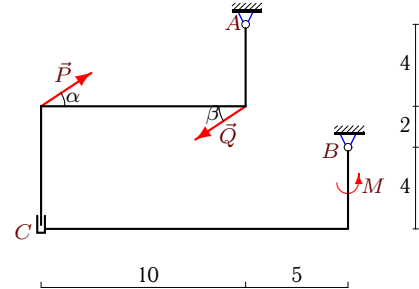
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.54.)

**Задача 8.1.**



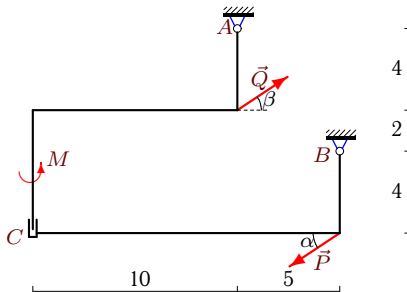
$P=4\text{кН}$ ,  $Q=1\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=45^\circ$ ,  $M=1\text{кНм}$ .

**Задача 8.2.**



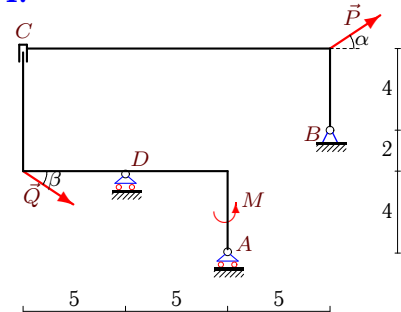
$P=3\text{кН}$ ,  $Q=6\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=30^\circ$ ,  $M=4\text{кНм}$ .

**Задача 8.3.**



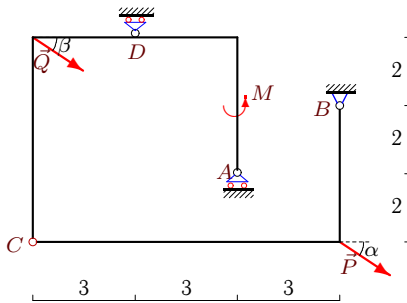
$P=5\text{кН}$ ,  $Q=5\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=45^\circ$ ,  $M=8\text{кНм}$ .

**Задача 8.4.**



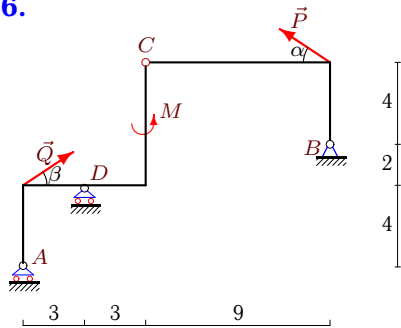
$P=6\text{кН}$ ,  $Q=9\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=60^\circ$ ,  $M=5\text{кНм}$ .

**Задача 8.5.**



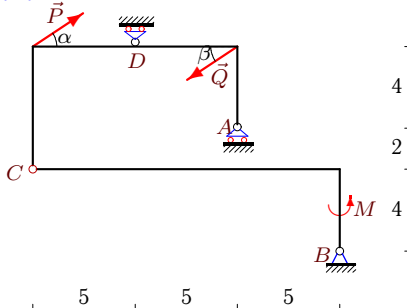
$P=5\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=30^\circ$ ,  $M=4\text{кНм}$ .

**Задача 8.6.**



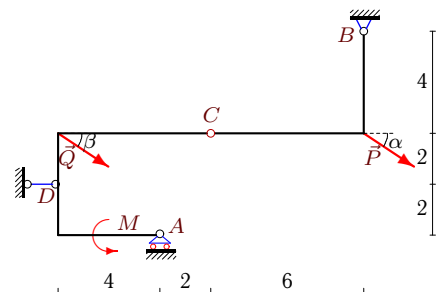
$P=6\text{кН}$ ,  $Q=5\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=60^\circ$ ,  $M=1\text{кНм}$ .

**Задача 8.7.**



$P=4\text{кН}$ ,  $Q=8\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=30^\circ$ ,  $M=9\text{кНм}$ .

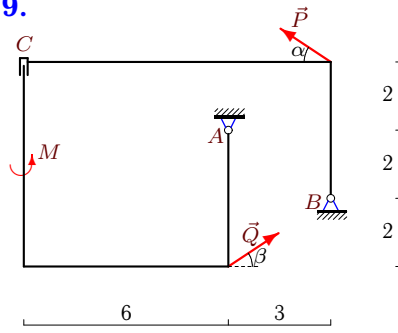
**Задача 8.8.**



$P=5\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=30^\circ$ ,  $M=8\text{кНм}$ .

**Задача 8.9.**

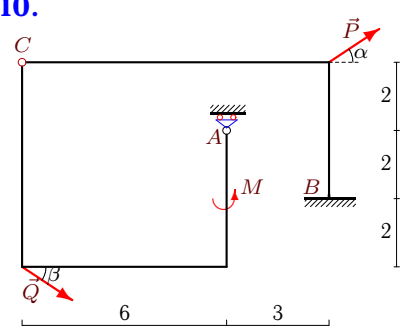
6



$P=5\text{кН}, Q=7\text{кН}, \alpha=45^\circ, \beta=30^\circ, M=3\text{кНм}.$

**Задача 8.10.**

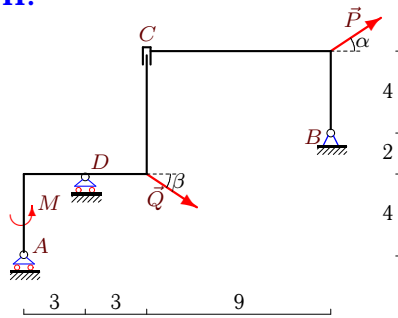
6



$P=7\text{кН}, Q=9\text{кН}, \alpha=30^\circ, \beta=60^\circ, M=7\text{кНм}.$

**Задача 8.11.**

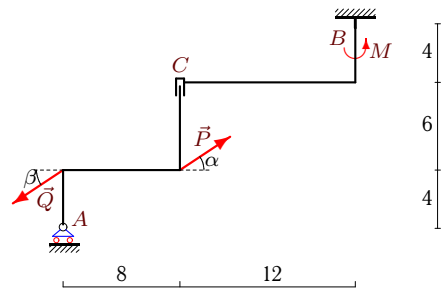
6



$P=6\text{кН}, Q=6\text{кН}, \alpha=30^\circ, \beta=45^\circ, M=1\text{кНм}.$

**Задача 8.12.**

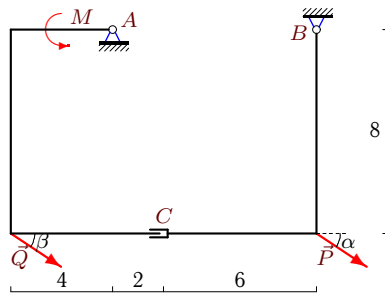
6



$P=7\text{кН}, Q=2\text{кН}, \alpha=30^\circ, \beta=45^\circ, M=2\text{кНм}.$

**Задача 8.13.**

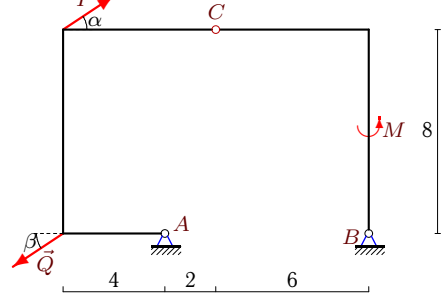
6



$P=4\text{кН}, Q=1\text{кН}, \alpha=30^\circ, \beta=60^\circ, M=2\text{кНм}.$

**Задача 8.14.**

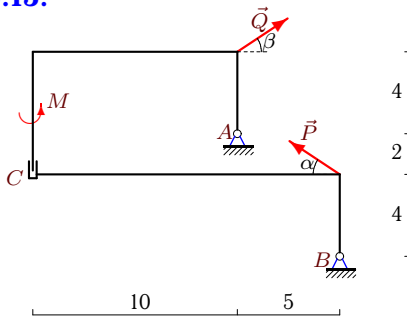
6



$P=2\text{кН}, Q=4\text{кН}, \alpha=45^\circ, \beta=30^\circ, M=3\text{кНм}.$

**Задача 8.15.**

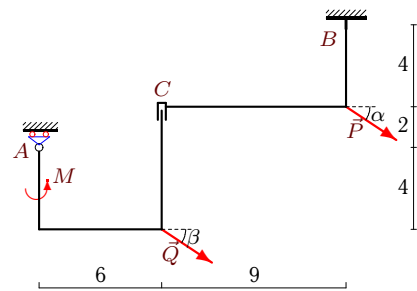
6



$P=5\text{кН}, Q=4\text{кН}, \alpha=30^\circ, \beta=60^\circ, M=8\text{кНм}.$

**Задача 8.16.**

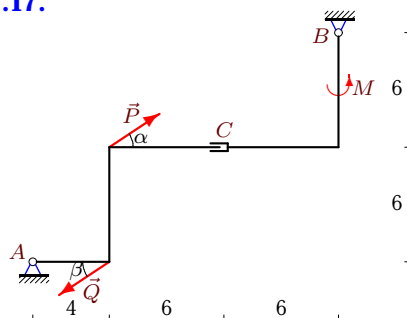
6



$P=8\text{кН}, Q=4\text{кН}, \alpha=60^\circ, \beta=30^\circ, M=8\text{кНм}.$

**Задача 8.17.**

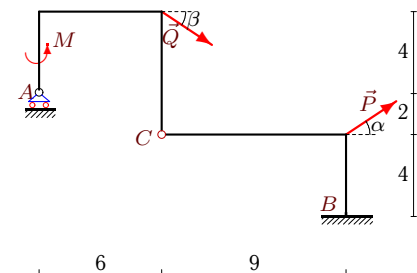
6



$P=3\text{кН}, Q=9\text{кН}, \alpha=60^\circ, \beta=30^\circ, M=7\text{кНм}.$

**Задача 8.18.**

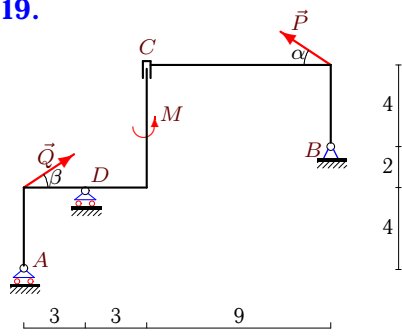
6



$P=7\text{кН}, Q=2\text{кН}, \alpha=45^\circ, \beta=30^\circ, M=9\text{кНм}.$

**Задача 8.19.**

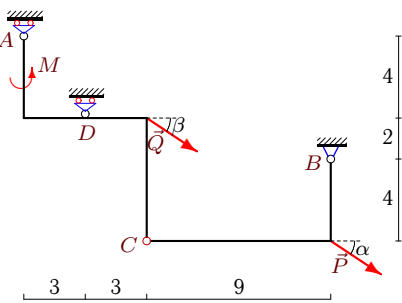
6



$P=7\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=30^\circ$ ,  $M=6\text{ кНм}$ .

**Задача 8.21.**

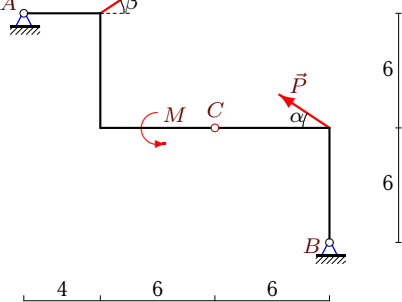
6



$P=5\text{кН}$ ,  $Q=7\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=30^\circ$ ,  $M=1\text{ кНм}$ .

**Задача 8.23.**

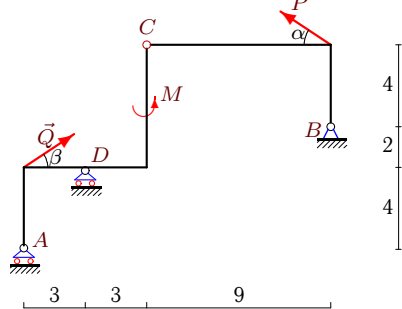
6



$P=4\text{кН}$ ,  $Q=6\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=60^\circ$ ,  $M=3\text{ кНм}$ .

**Задача 8.25.**

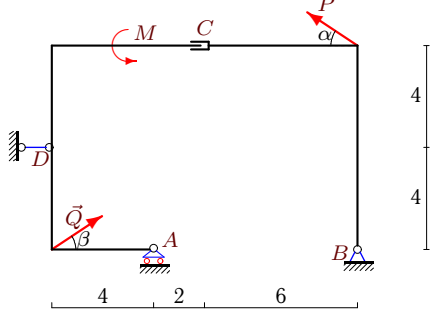
6



$P=6\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=60^\circ$ ,  $M=8\text{ кНм}$ .

**Задача 8.27.**

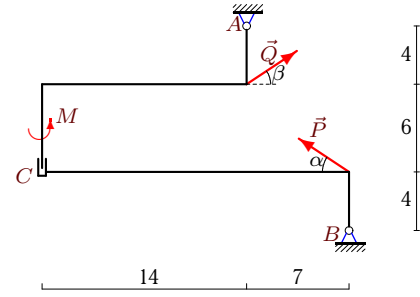
6



$P=7\text{кН}$ ,  $Q=8\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=45^\circ$ ,  $M=6\text{ кНм}$ .

**Задача 8.20.**

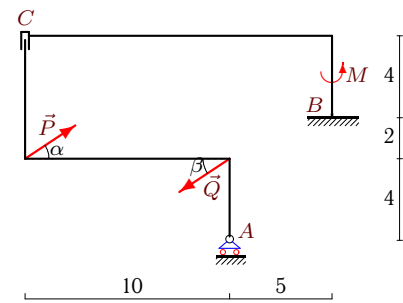
6



$P=5\text{кН}$ ,  $Q=6\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=45^\circ$ ,  $M=6\text{ кНм}$ .

**Задача 8.22.**

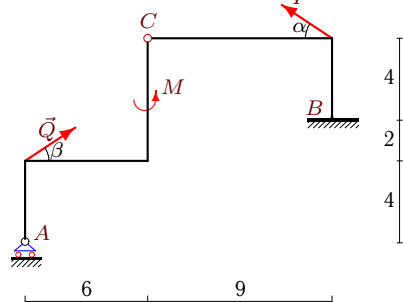
6



$P=7\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=30^\circ$ ,  $M=9\text{ кНм}$ .

**Задача 8.24.**

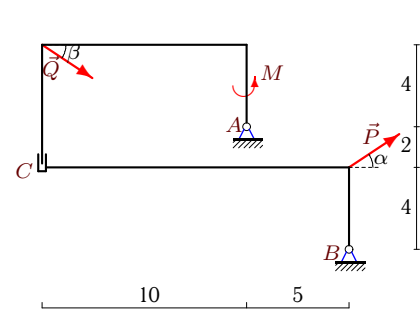
6



$P=8\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=30^\circ$ ,  $\beta=45^\circ$ ,  $M=7\text{ кНм}$ .

**Задача 8.26.**

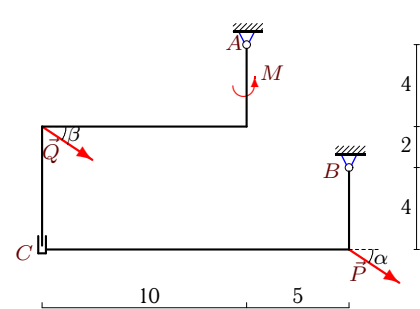
6



$P=4\text{кН}$ ,  $Q=3\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=60^\circ$ ,  $M=5\text{ кНм}$ .

**Задача 8.28.**

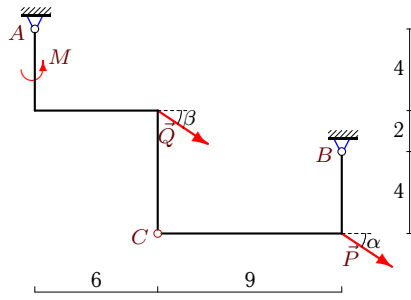
6



$P=4\text{кН}$ ,  $Q=1\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=60^\circ$ ,  $M=3\text{ кНм}$ .

**Задача 8.29.**

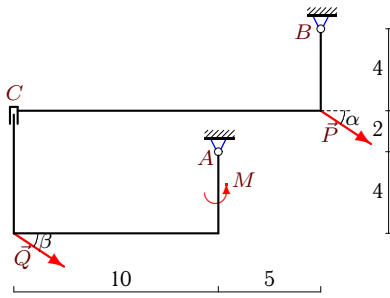
6



$P=3\text{кН}$ ,  $Q=2\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=30^\circ$ ,  $M=2\text{ кНм}$ .

**Задача 8.31.**

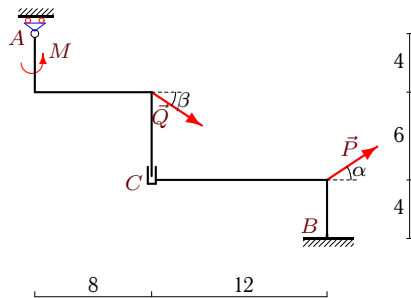
6



$P=4\text{кН}$ ,  $Q=7\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=45^\circ$ ,  $M=6\text{ кНм}$ .

**Задача 8.33.**

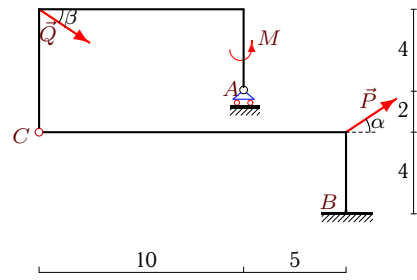
6



$P=8\text{кН}$ ,  $Q=4\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=45^\circ$ ,  $M=2\text{ кНм}$ .

**Задача 8.30.**

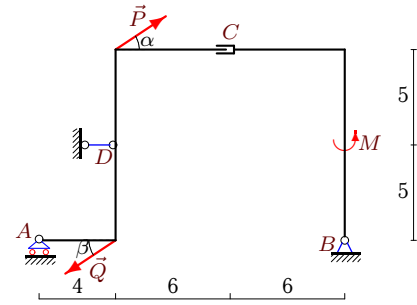
6



$P=7\text{кН}$ ,  $Q=1\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=30^\circ$ ,  $M=7\text{ кНм}$ .

**Задача 8.32.**

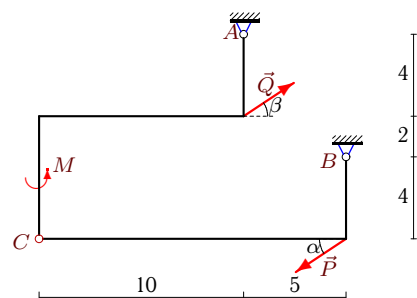
6



$P=5\text{кН}$ ,  $Q=9\text{кН}$ ,  $\alpha=60^\circ$ ,  $\beta=45^\circ$ ,  $M=8\text{ кНм}$ .

**Задача 8.34.**

6



$P=4\text{кН}$ ,  $Q=1\text{кН}$ ,  $\alpha=45^\circ$ ,  $\beta=60^\circ$ ,  $M=4\text{ кНм}$ .

**Составная прямоугольная рама**

	$X_A$	$Y_A$	$X_B$	$Y_B$	$X_D$	$Y_D$	$M_B$
1	1.638	0.707	-4.345	-3.464	—	—	—
2	-1.844	0.879	4.919	0.000	—	—	—
3	-1.512	-3.536	0.476	4.330	—	—	—
4	—	-6.437	-9.696	-3.000	—	14.232	—
5	—	0.944	-5.964	1.679	—	3.707	—
6	—	-0.195	2.696	-4.198	—	-2.937	—
7	—	-0.364	4.928	-1.914	—	2.814	—
8	—	-2.072	6.108	8.402	-12.072	—	—
9	14.633	-3.500	-17.160	-3.536	—	—	—
10	—	-5.667	-10.562	9.961	—	—	-78.899
11	—	-8.009	-9.439	-3.000	—	12.252	—
12	—	-2.086	-4.648	0.000	—	—	-76.480
13	-0.500	5.513	-3.464	-2.647	—	—	—
14	2.985	-0.161	-0.935	0.746	—	—	—
15	0.887	-3.464	1.443	-2.500	—	—	—
16	—	2.000	-7.464	6.928	—	—	-46.641
17	6.294	1.301	0.000	0.600	—	—	—
18	—	-0.232	-6.682	-3.718	—	—	15.639
19	—	8.909	1.486	-4.950	—	-10.909	—
20	-1.365	-4.243	1.452	-2.500	—	—	—
21	—	-19.557	-9.598	-0.730	—	27.322	—
22	—	-4.062	-0.036	0.000	—	—	51.550
23	-0.286	-4.446	0.750	-2.750	—	—	—
24	—	1.167	4.100	-7.995	—	—	19.557
25	—	2.206	2.243	-5.239	—	-4.673	—
26	0.778	2.598	-5.106	-2.828	—	—	—
27	—	1.155	6.062	-10.312	-5.657	—	—
28	3.662	0.866	-6.991	2.828	—	—	—
29	-1.947	1.847	-1.906	1.274	—	—	—
30	—	-0.180	-4.366	-5.382	—	—	7.258
31	-18.832	4.950	11.883	3.464	—	—	—
32	—	-0.745	0.000	2.778	3.864	—	—
33	—	2.828	-6.828	-6.928	—	—	64.912
34	-0.710	-1.676	3.039	3.639	—	—	—