

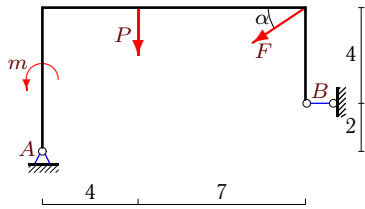
## Равновесие рамы

Определить реакции опор рамы;  $\cos \alpha = 0.8$ .

Кирсанов М.Н. **Решebник. Теоретическая механика**/Под ред. А. И. Кириллова.- М.:ФИЗМАТЛИТ, 2008.- 384 с. (с.67.)

**Задача 29.1.**

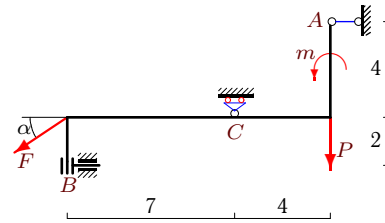
10



$$F = 10 \text{ кН}, P = 1 \text{ кН}, m = 4 \text{ кНм}.$$

**Задача 29.2.**

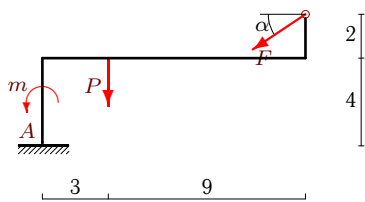
10



$$F = 5 \text{ кН}, P = 1 \text{ кН}, m = 3 \text{ кНм}.$$

**Задача 29.3.**

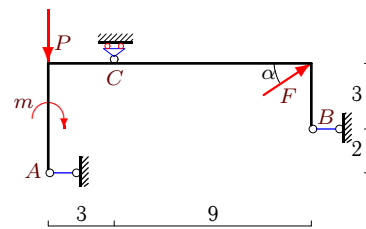
10



$$F = 20 \text{ кН}, P = 4 \text{ кН}, m = 7 \text{ кНм}.$$

**Задача 29.4.**

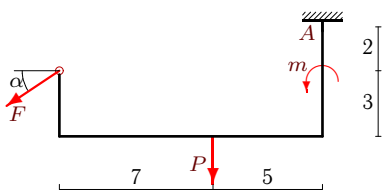
10



$$F = 10 \text{ кН}, P = 1 \text{ кН}, m = 3 \text{ кНм}.$$

**Задача 29.5.**

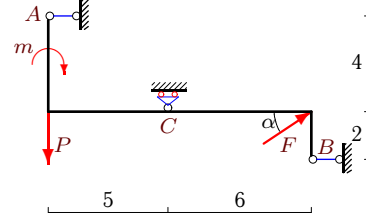
10



$$F = 25 \text{ кН}, P = 5 \text{ кН}, m = 8 \text{ кНм}.$$

**Задача 29.6.**

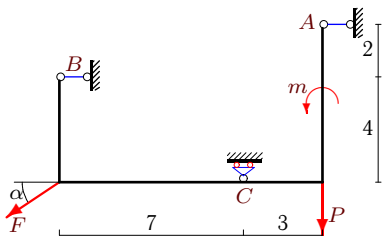
10



$$F = 15 \text{ кН}, P = 3 \text{ кН}, m = 15 \text{ кНм}.$$

**Задача 29.7.**

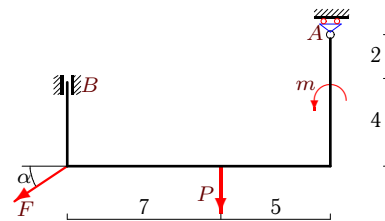
10



$$F = 10 \text{ кН}, P = 11 \text{ кН}, m = 33 \text{ кНм}.$$

**Задача 29.8.**

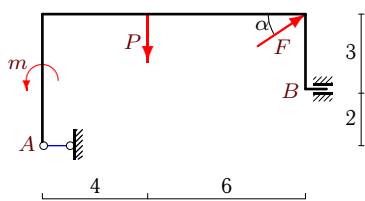
10



$$F = 15 \text{ кН}, P = 4 \text{ кН}, m = 9 \text{ кНм}.$$

**Задача 29.9.**

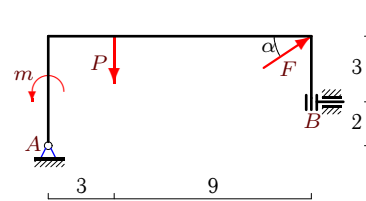
10



$$F = 30 \text{ кН}, P = 2 \text{ кН}, m = 5 \text{ кНм}.$$

**Задача 29.10.**

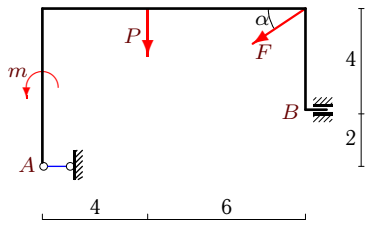
10



$$F = 30 \text{ кН}, P = 1 \text{ кН}, m = 17 \text{ кНм}.$$

**Задача 29.11.**

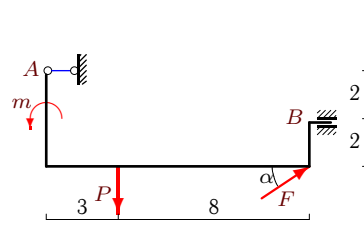
10



$F = 40 \text{ кН}, P = 1 \text{ кН}, m = 3 \text{ кНм}.$

**Задача 29.12.**

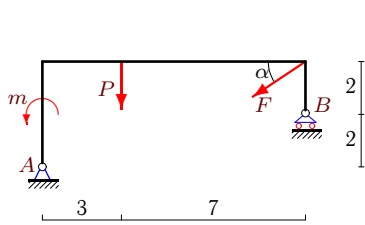
10



$F = 25 \text{ кН}, P = 2 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.13.**

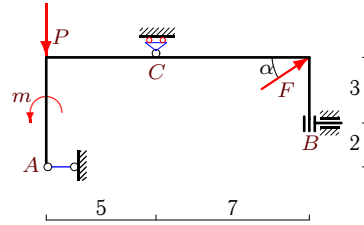
10



$F = 100 \text{ кН}, P = 3 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.14.**

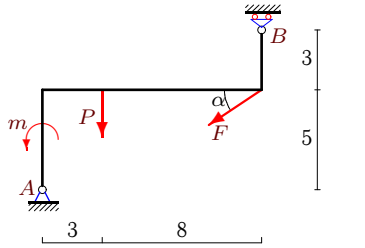
10



$F = 20 \text{ кН}, P = 3 \text{ кН}, m = 23 \text{ кНм}.$

**Задача 29.15.**

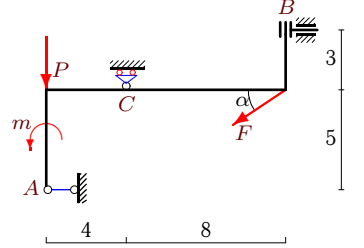
10



$F = 55 \text{ кН}, P = 1 \text{ кН}, m = 3 \text{ кНм}.$

**Задача 29.16.**

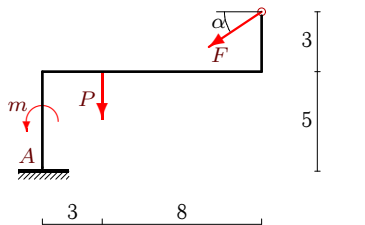
10



$F = 50 \text{ кН}, P = 3 \text{ кН}, m = 23 \text{ кНм}.$

**Задача 29.17.**

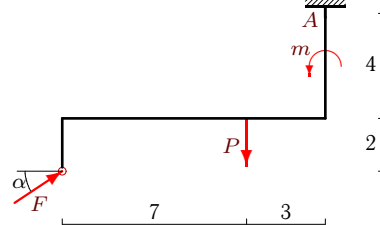
10



$F = 25 \text{ кН}, P = 3 \text{ кН}, m = 6 \text{ кНм}.$

**Задача 29.18.**

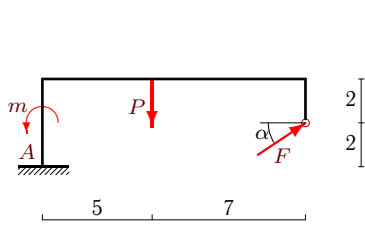
10



$F = 10 \text{ кН}, P = 2 \text{ кН}, m = 3 \text{ кНм}.$

**Задача 29.19.**

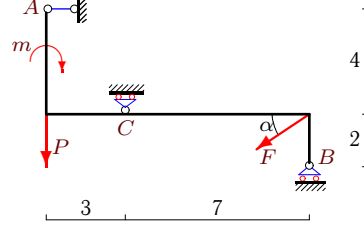
10



$F = 10 \text{ кН}, P = 4 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.20.**

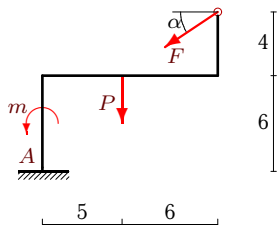
10



$F = 35 \text{ кН}, P = 4 \text{ кН}, m = 12 \text{ кНм}.$

**Задача 29.21.**

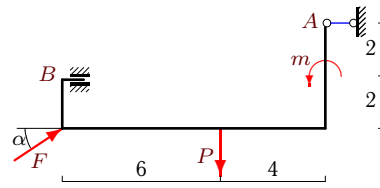
10



$F = 50 \text{ кН}, P = 3 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.22.**

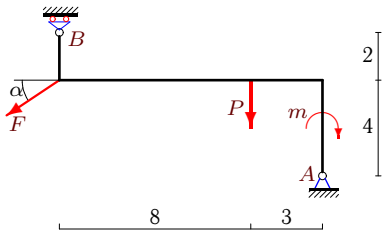
10



$F = 25 \text{ кН}, P = 3 \text{ кН}, m = 4 \text{ кНм}.$

**Задача 29.23.**

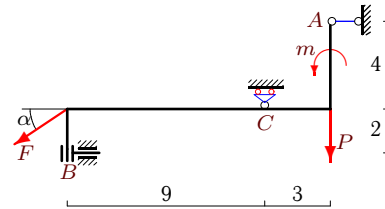
10



$F = 55 \text{ кН}, P = 2 \text{ кН}, m = 6 \text{ кНм}.$

**Задача 29.24.**

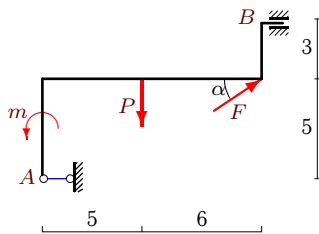
10



$F = 40 \text{ кН}, P = 3 \text{ кН}, m = 22 \text{ кНм}.$

**Задача 29.25.**

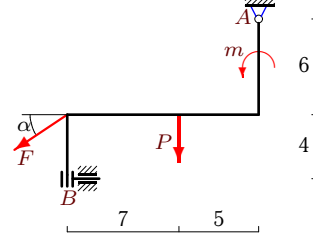
10



$F = 30 \text{ кН}, P = 3 \text{ кН}, m = 8 \text{ кНм}.$

**Задача 29.26.**

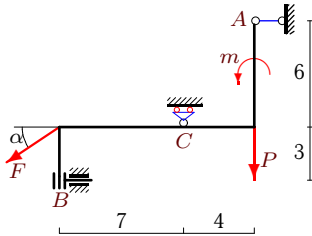
10



$F = 45 \text{ кН}, P = 4 \text{ кН}, m = 18 \text{ кНм}.$

**Задача 29.27.**

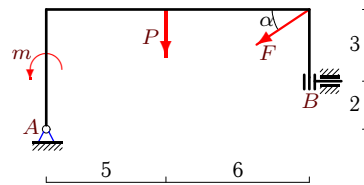
10



$F = 35 \text{ кН}, P = 4 \text{ кН}, m = 17 \text{ кНм}.$

**Задача 29.28.**

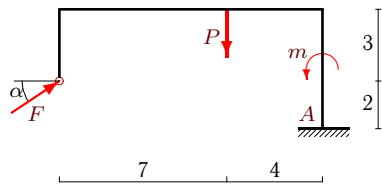
10



$F = 40 \text{ кН}, P = 5 \text{ кН}, m = 12 \text{ кНм}.$

**Задача 29.29.**

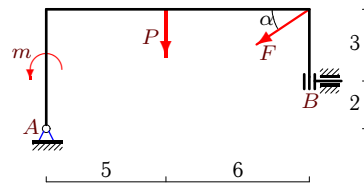
10



$F = 15 \text{ кН}, P = 2 \text{ кН}, m = 6 \text{ кНм}.$

**Задача 29.30.**

10



$F = 35 \text{ кН}, P = 2 \text{ кН}, m = 6 \text{ кНм}.$

**Равновесие рамы**

№	$X_A$	$Y_A$	$M_A$	$X_B$	$Y_B$	$M_B$	$Y_C$
1	17	7	—	-9	—	—	—
2	4	—	—	—	—	-4	4
3	16	16	53	—	—	—	—
4	-15	—	—	7	—	—	-5
5	20	20	-173	—	—	—	—
6	5	—	—	-17	—	—	-6
7	5	—	—	3	—	—	17
8	—	13	—	12	—	-89	—
9	-24	—	—	—	-16	103	—
10	-24	-17	—	—	—	-110	—
11	32	—	—	—	25	-201	—
12	-20	—	—	—	-13	-103	—
13	80	35	—	—	28	—	—
14	-16	—	—	—	—	-42	-9
15	44	21	—	—	13	—	—
16	40	—	—	—	—	5	33
17	20	18	8	—	—	—	—
18	-8	-4	3	—	—	—	—
19	-8	-2	-43	—	—	—	—
20	28	—	—	—	37	—	-12
21	40	33	-62	—	—	—	—
22	-20	—	—	—	-12	-66	—
23	44	-14	—	—	49	—	—
24	32	—	—	—	—	-101	27
25	-24	—	—	—	-15	94	—
26	36	31	—	—	—	-146	—
27	28	—	—	—	—	20	25
28	32	29	—	—	—	117	—
29	-12	-7	109	—	—	—	—
30	28	23	—	—	—	95	—