

# 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.** 6

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

**Задача 29.2.** 6

$F = 30 \text{ кН}, P = 1 \text{ кН}, m = 4 \text{ кНм}.$

**Задача 29.3.** 6

$F = 35 \text{ кН}, P = 5 \text{ кН}, m = 16 \text{ кНм}.$

**Задача 29.4.** 6

$F = 20 \text{ кН}, P = 2 \text{ кН}, m = 5 \text{ кНм}.$

**Задача 29.5.** 6

$F = 50 \text{ кН}, P = 1 \text{ кН}, m = 4 \text{ кНм}.$

**Задача 29.6.** 6

$F = 30 \text{ кН}, P = 5 \text{ кН}, m = 16 \text{ кНм}.$

**Задача 29.7.** 6

$F = 5 \text{ кН}, P = 1 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.8.** 6

$F = 45 \text{ кН}, P = 4 \text{ кН}, m = 13 \text{ кНм}.$

**Задача 29.9.** 6

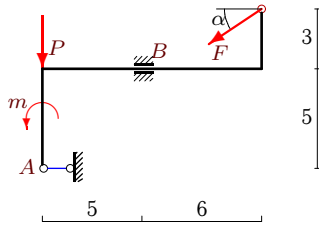
$F = 20 \text{ кН}, P = 1 \text{ кН}, m = 3 \text{ кНм}.$

**Задача 29.10.** 6

$F = 40 \text{ кН}, P = 4 \text{ кН}, m = 17 \text{ кНм}.$

**Задача 29.11.**

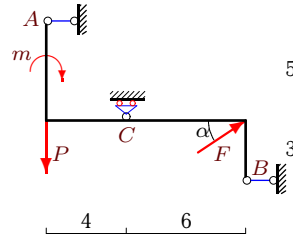
6



$F = 50 \text{ кН}, P = 24 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.12.**

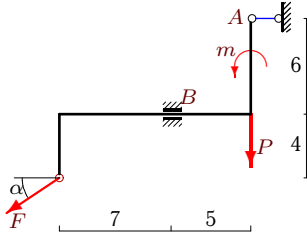
6



$F = 20 \text{ кН}, P = 2 \text{ кН}, m = 8 \text{ кНм}.$

**Задача 29.13.**

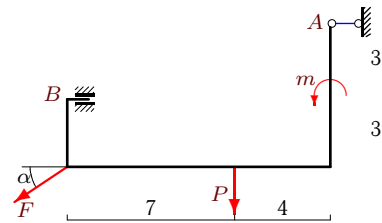
6



$F = 35 \text{ кН}, P = 24 \text{ кН}, m = 21 \text{ кНм}.$

**Задача 29.14.**

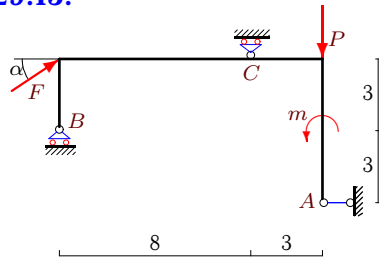
6



$F = 45 \text{ кН}, P = 4 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.15.**

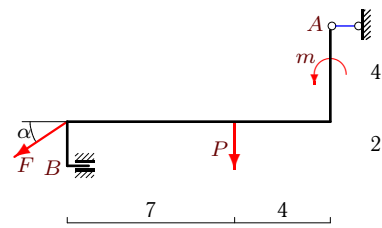
6



$F = 40 \text{ кН}, P = 3 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.16.**

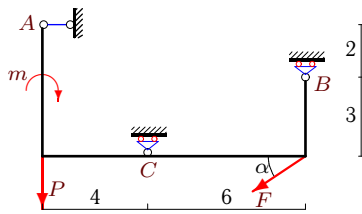
6



$F = 60 \text{ кН}, P = 4 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.17.**

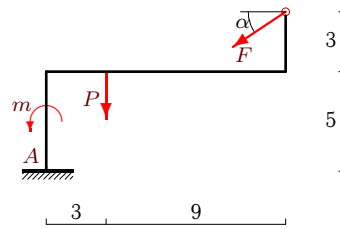
6



$F = 15 \text{ кН}, P = 2 \text{ кН}, m = 8 \text{ кНм}.$

**Задача 29.18.**

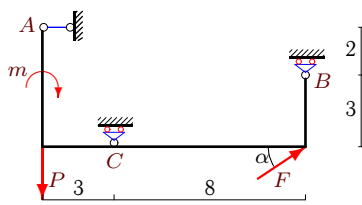
6



$F = 25 \text{ кН}, P = 3 \text{ кН}, m = 8 \text{ кНм}.$

**Задача 29.19.**

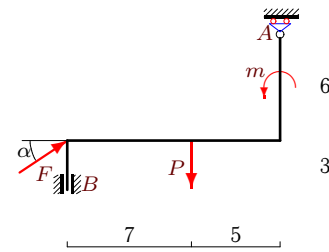
6



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

**Задача 29.20.**

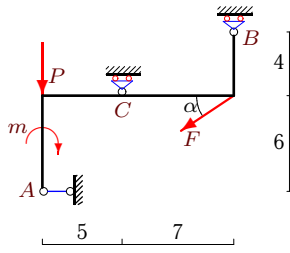
6



$F = 5 \text{ кН}, P = 3 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.21.**

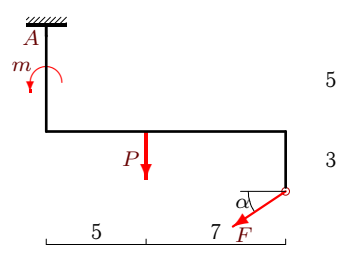
6



$F = 70 \text{ кН}, P = 3 \text{ кН}, m = 15 \text{ кНм}.$

**Задача 29.22.**

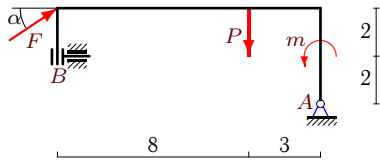
6



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

**Задача 29.23.**

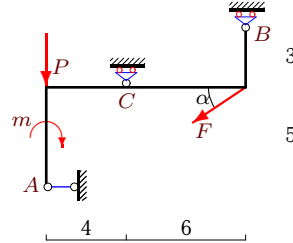
6



$F = 25 \text{ кН}, P = 2 \text{ кН}, m = 11 \text{ кНм}.$

**Задача 29.24.**

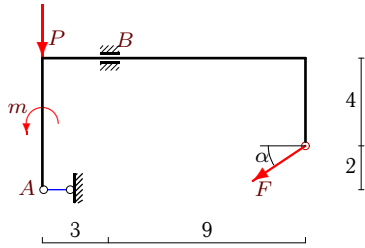
6



$F = 60 \text{ кН}, P = 3 \text{ кН}, m = 12 \text{ кНм}.$

**Задача 29.25.**

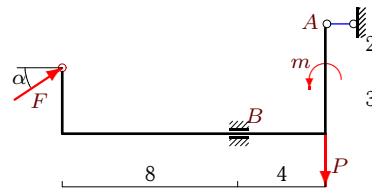
6



$F = 20 \text{ кН}, P = 2 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.26.**

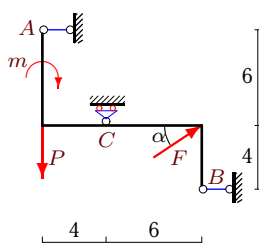
6



$F = 10 \text{ кН}, P = 6 \text{ кН}, m = 7 \text{ кНм}.$

**Задача 29.27.**

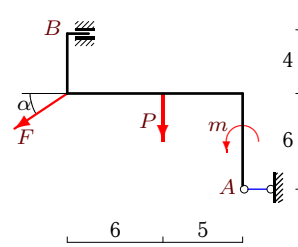
6



$F = 50 \text{ кН}, P = 1 \text{ кН}, m = 4 \text{ кНм}.$

**Задача 29.28.**

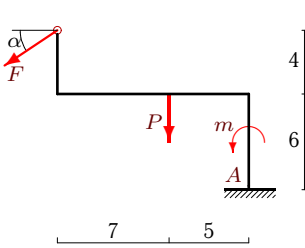
6



$F = 80 \text{ кН}, P = 3 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.29.**

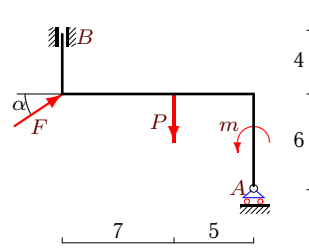
6



$F = 50 \text{ кН}, P = 3 \text{ кН}, m = 9 \text{ кНм}.$

**Задача 29.30.**

6



$F = 5 \text{ кН}, P = 2 \text{ кН}, m = 9 \text{ кНм}.$

**Равновесие рамы**

№	$X_A$	$Y_A$	$M_A$	$X_B$	$Y_B$	$M_B$	$Y_C$
1	28	—	—	—	5	—	18
2	—8	—	—	32	—	—	19
3	28	26	—	—	—	—176	—
4	—	14	—	16	—	59	—
5	—2	—	—	42	—	—	31
6	24	—	—	—	—	—219	23
7	—	—2	—	—4	—	—49	—
8	36	31	—	—	—	—114	—
9	16	—	—	—	13	86	—
10	32	28	—	—	—	447	—
11	40	—	—	—	54	—267	—
12	3	—	—	—19	—	—	—10
13	28	—	—	—	45	232	—
14	36	—	—	—	31	235	—
15	—32	—	—	—	—48	—	27
16	48	—	—	—	40	213	—
17	12	—	—	—	19	—	—8
18	20	18	21	—	—	—	—
19	—32	—	—	—	—44	—	21
20	—	0	—	—4	—	24	—
21	56	—	—	—	—6	—	51
22	20	20	357	—	—	—	—
23	—20	—13	—	—	—	228	—
24	48	—	—	—	—4	—	43
25	16	—	—	—	14	63	—
26	—8	—	—	—	0	49	—
27	2	—	—	—42	—	—	—29
28	64	—	—	—	51	—375	—
29	40	33	—784	—	—	—	—
30	—	—1	—	—4	—	1	—