

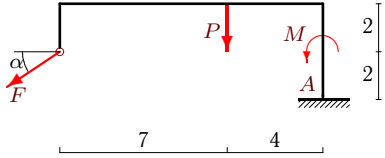
# Равновесие рамы

Определить реакции опор рамы.

Кирсанов М.Н. Задачи по теоретической механике с решениями в **Maple** 11. – М.: ФИЗМАТЛИТ, 2010. – 264 с. (с.10)

**Задача S29.1.**

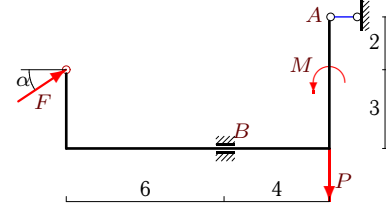
8



$$F = 30 \text{ кН}, P = 4 \text{ кН}, M = 5 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.2.**

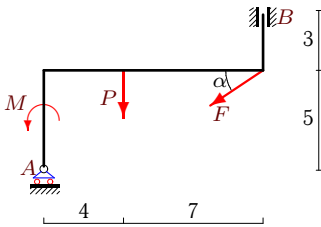
8



$$F = 10 \text{ кН}, P = 6 \text{ кН}, M = 5 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.3.**

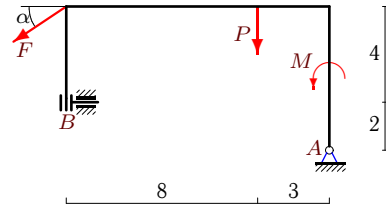
8



$$F = 20 \text{ кН}, P = 3 \text{ кН}, M = 6 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.4.**

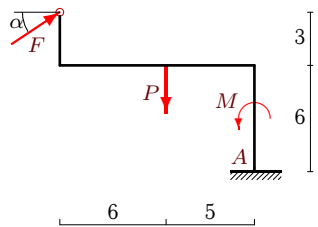
8



$$F = 80 \text{ кН}, P = 1 \text{ кН}, M = 13 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.5.**

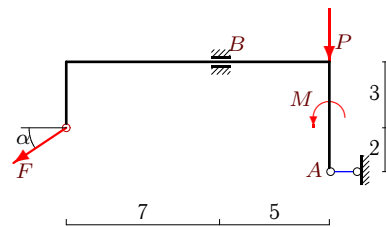
8



$$F = 20 \text{ кН}, P = 3 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.6.**

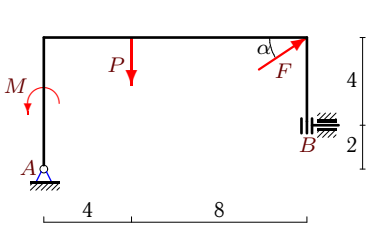
8



$$F = 25 \text{ кН}, P = 12 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.7.**

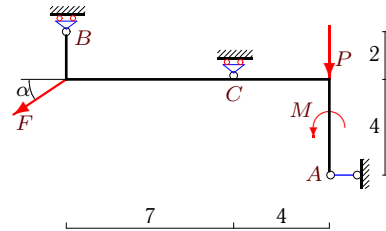
8



$$F = 35 \text{ кН}, P = 1 \text{ кН}, M = 18 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.8.**

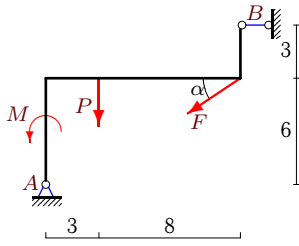
8



$$F = 35 \text{ кН}, P = 3 \text{ кН}, M = 12 \text{ кНм}, \cos \alpha = 0.8.$$

**Задача S29.9.**

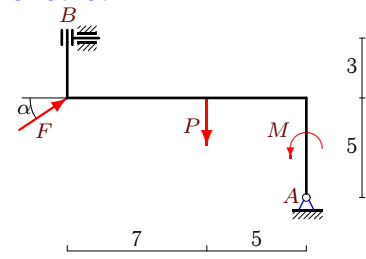
8



$F = 15 \text{ кН}, P = 1 \text{ кН}, M = 3 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.10.**

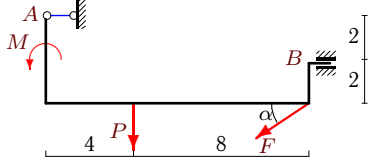
8



$F = 30 \text{ кН}, P = 3 \text{ кН}, M = 17 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.11.**

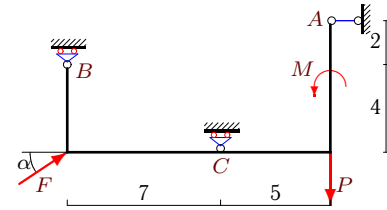
8



$F = 35 \text{ кН}, P = 5 \text{ кН}, M = 10 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.12.**

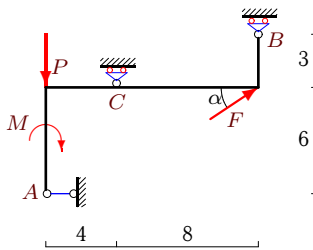
8



$F = 70 \text{ кН}, P = 3 \text{ кН}, M = 15 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.13.**

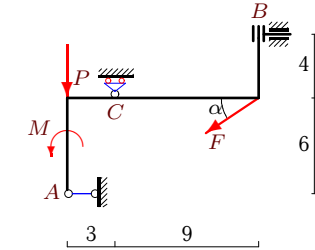
8



$F = 20 \text{ кН}, P = 1 \text{ кН}, M = 4 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.14.**

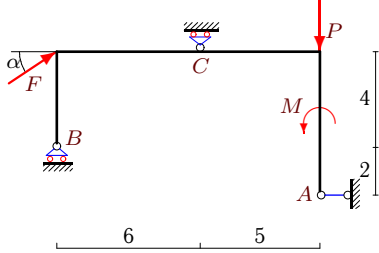
8



$F = 35 \text{ кН}, P = 2 \text{ кН}, M = 24 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.15.**

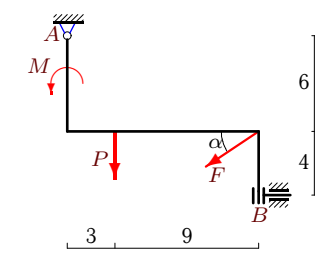
8



$F = 20 \text{ кН}, P = 1 \text{ кН}, M = 5 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.16.**

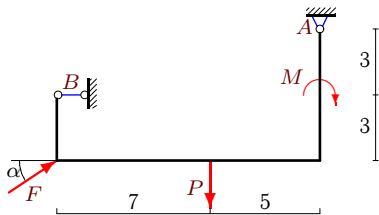
8



$F = 45 \text{ кН}, P = 2 \text{ кН}, M = 18 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.17.**

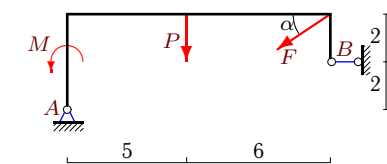
8



$F = 15 \text{ кН}, P = 2 \text{ кН}, M = 10 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.18.**

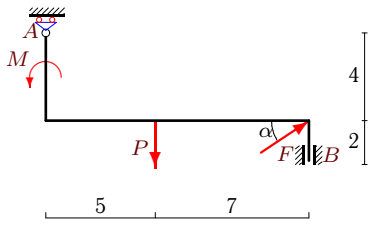
8



$F = 20 \text{ кН}, P = 5 \text{ кН}, M = 25 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.19.**

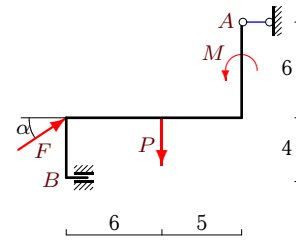
8



$F = 5 \text{ кН}, P = 4 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.20.**

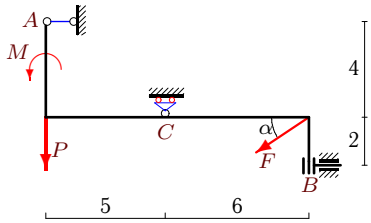
8



$F = 35 \text{ кН}, P = 2 \text{ кН}, M = 9 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.21.**

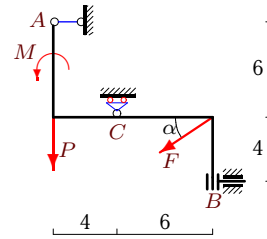
8



$F = 40 \text{ кН}, P = 5 \text{ кН}, M = 15 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.22.**

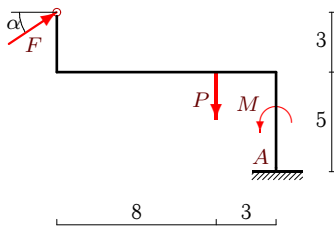
8



$F = 30 \text{ кН}, P = 1 \text{ кН}, M = 5 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.23.**

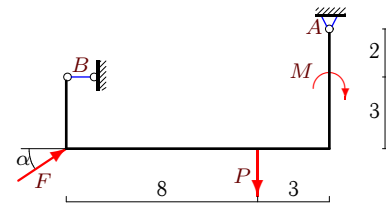
8



$F = 15 \text{ кН}, P = 1 \text{ кН}, M = 6 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.24.**

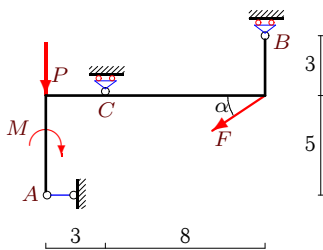
8



$F = 10 \text{ кН}, P = 3 \text{ кН}, M = 9 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.25.**

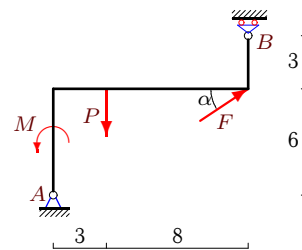
8



$F = 40 \text{ кН}, P = 1 \text{ кН}, M = 3 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.26.**

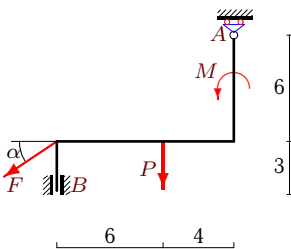
8



$F = 55 \text{ кН}, P = 1 \text{ кН}, M = 3 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.27.**

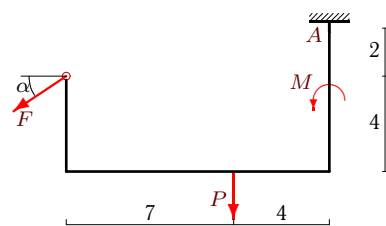
8



$F = 15 \text{ кН}, P = 4 \text{ кН}, M = 5 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.28.**

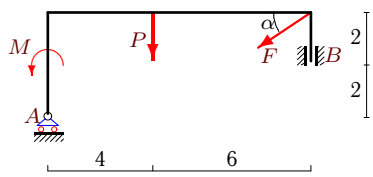
8



$F = 30 \text{ кН}, P = 3 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.29.**

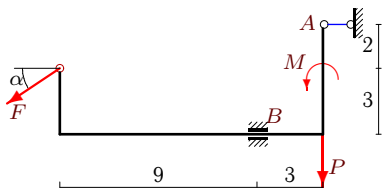
8



$F = 20 \text{ кН}, P = 4 \text{ кН}, M = 3 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.31.**

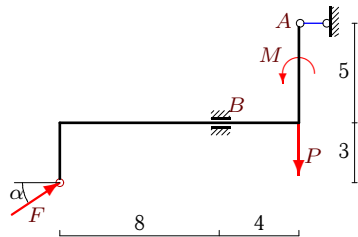
8



$F = 15 \text{ кН}, P = 9 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.33.**

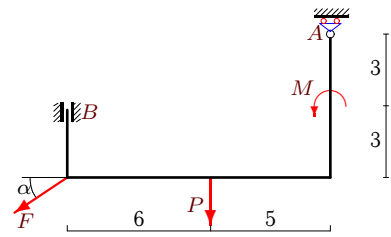
8



$F = 10 \text{ кН}, P = 6 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.30.**

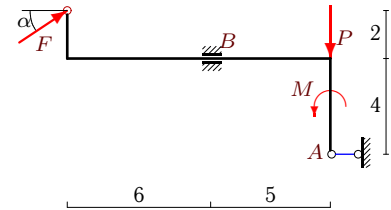
8



$F = 15 \text{ кН}, P = 5 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.32.**

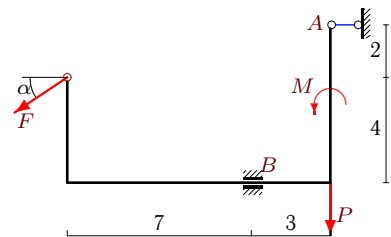
8



$F = 15 \text{ кН}, P = 24 \text{ кН}, M = 10 \text{ кНм}, \cos \alpha = 0.8.$

**Задача S29.34.**

8



$F = 35 \text{ кН}, P = 12 \text{ кН}, M = 7 \text{ кНм}, \cos \alpha = 0.8.$

**S29 Ответы.**  
**Равновесие рамы**

03.12.2011

№	$X_A$	$Y_A$	$M_A$	$X_B$	$Y_B$	$M_B$	$Y_C$
1	24	22	-267	-	-	-	-
2	-8	-	-	-	0	39	-
3	-	15	-	16	-	186	-
4	64	49	-	-	-	-928	-
5	-16	-9	254	-	-	-	-
6	20	-	-	-	27	-92	-
7	-28	-20	-	-	-	-98	-
8	28	-	-	-	37	-	-13
9	15	10	-	-3	-	-	-
10	-24	-15	-	-	-	304	-
11	28	-	-	-	26	62	-
12	-56	-	-	-	6	-	-45
13	-16	-	-	-	0	-	-11
14	28	-	-	-	-	-9	23
15	-16	-	-	-	-28	-	17
16	36	29	-	-	-	528	-
17	-24	-7	-	12	-	-	-
18	50	17	-	-34	-	-	-
19	-	1	-	-4	-	-15	-
20	-28	-	-	-	-19	-165	-
21	32	-	-	-	-	232	29
22	24	-	-	-	-	243	19
23	-12	-8	186	-	-	-	-
24	-21	-3	-	13	-	-	-
25	32	-	-	-	4	-	21
26	-44	-23	-	-	-9	-	-
27	-	13	-	12	-	-147	-
28	24	21	-169	-	-	-	-
29	-	16	-	16	-	101	-
30	-	14	-	12	-	-95	-
31	12	-	-	-	18	-37	-
32	-12	-	-	-	15	236	-
33	-8	-	-	-	0	1	-
34	28	-	-	-	33	-62	-

S29 файл о29с8А