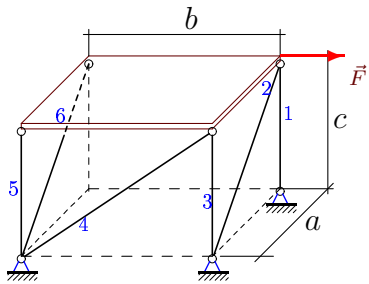


## Равновесие плиты

Однородная прямоугольная горизонтальная плита весом  $G$  опирается на шесть невесомых шарнирно закрепленных по концам стержней. Вдоль ребра плиты действует сила  $F$ . Определить усилия в стержнях (в кН).

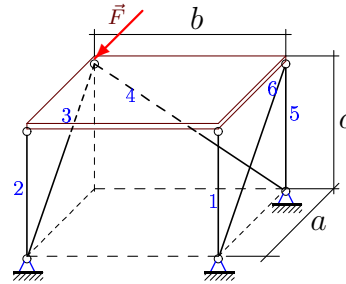
Кирсанов М.Н. **Решebник. Теоретическая механика**/Под ред. А. И. Кириллова.— М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.101.)

**Задача S-13.1.**



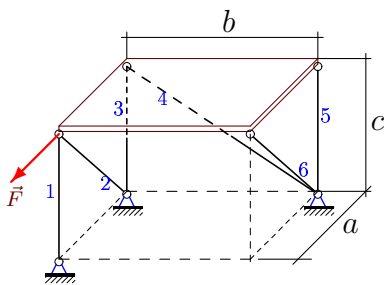
$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 56 \text{ кН}, G = 120 \text{ кН}.$

**Задача S-13.2.**



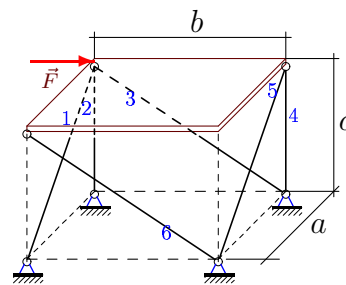
$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 16 \text{ кН}, G = 30 \text{ кН}.$

**Задача S-13.3.**



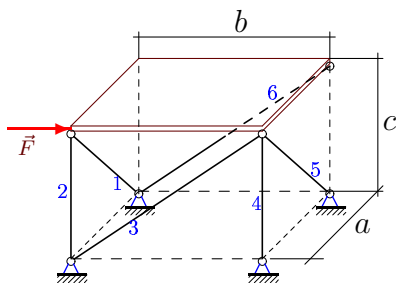
$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 3 \text{ кН}, G = 4 \text{ кН}.$

**Задача S-13.4.**



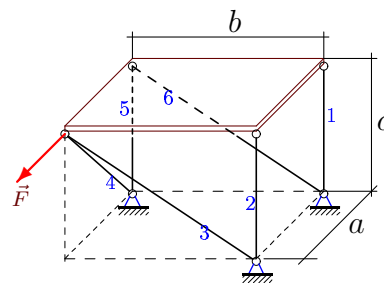
$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 15 \text{ кН}, G = 96 \text{ кН}.$

**Задача S-13.5.**



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 12 \text{ кН}, G = 30 \text{ кН}.$

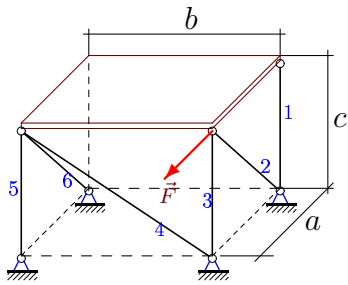
**Задача S-13.6.**



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 8 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.7.

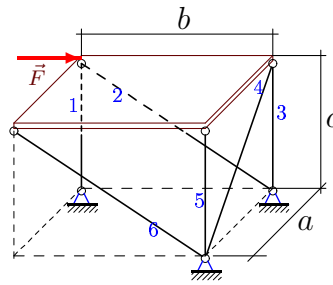
9



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 15 \text{ кН}, G = 32 \text{ кН}.$

Задача S-13.8.

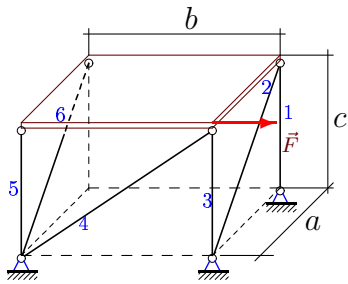
9



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 21 \text{ кН}, G = 40 \text{ кН}.$

Задача S-13.9.

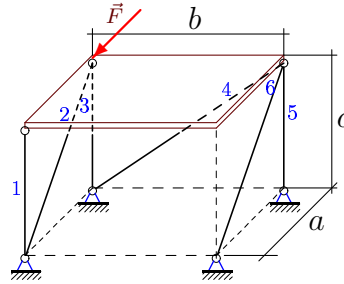
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 8 \text{ кН}, G = 12 \text{ кН}.$

Задача S-13.10.

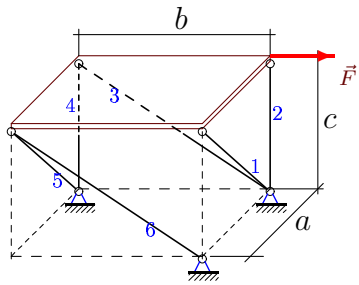
9



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 4 \text{ кН}, G = 4 \text{ кН}.$

Задача S-13.11.

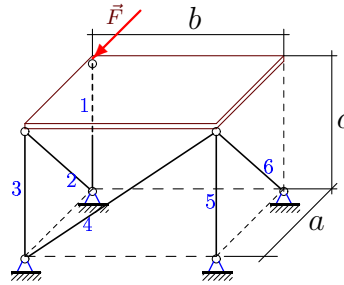
9



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 48 \text{ кН}, G = 70 \text{ кН}.$

Задача S-13.12.

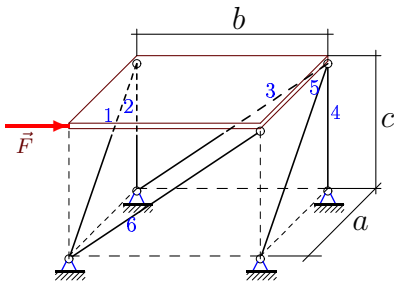
9



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 3 \text{ кН}, G = 12 \text{ кН}.$

Задача S-13.13.

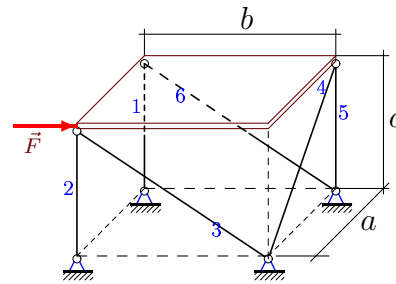
9



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 28 \text{ кН}, G = 30 \text{ кН}.$

Задача S-13.14.

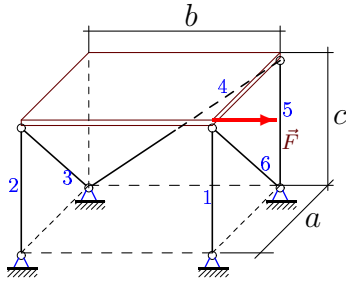
9



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 35 \text{ кН}, G = 120 \text{ кН}.$

Задача S-13.15.

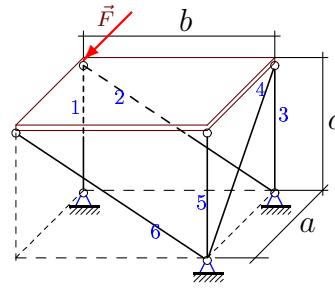
9



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 12 \text{ кН}, G = 8 \text{ кН}.$

Задача S-13.16.

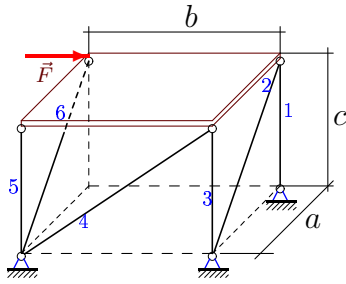
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 8 \text{ кН}, G = 30 \text{ кН}.$

Задача S-13.17.

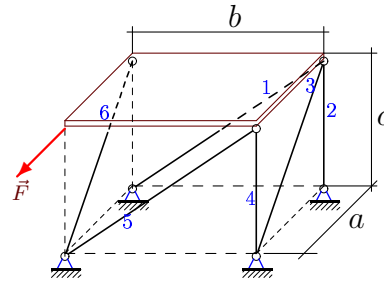
9



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 5 \text{ кН}, G = 16 \text{ кН}.$

Задача S-13.18.

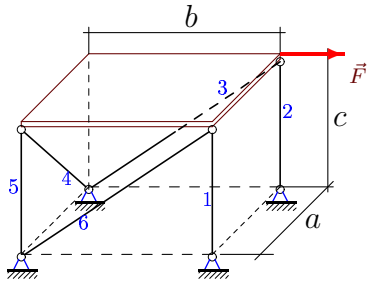
9



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 12 \text{ кН}, G = 8 \text{ кН}.$

Задача S-13.19.

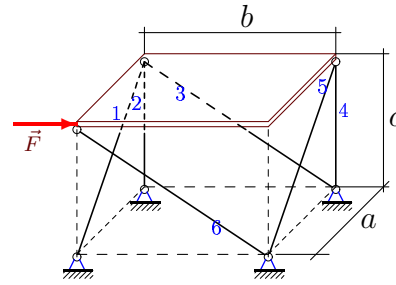
9



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 16 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.20.

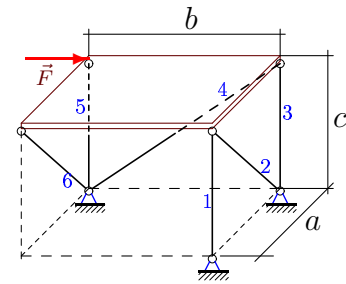
9



$a = b = 15 \text{ м}, c = 8 \text{ м},$   
 $F = 30 \text{ кН}, G = 16 \text{ кН}.$

Задача S-13.21.

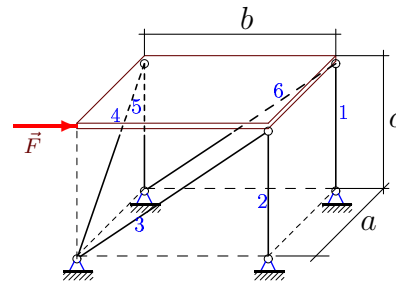
9



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 12 \text{ кН}, G = 20 \text{ кН}.$

Задача S-13.22.

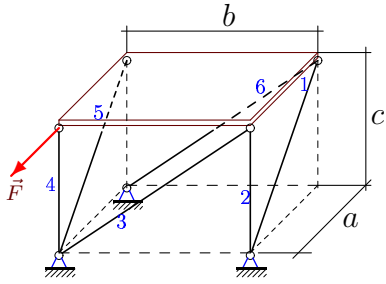
9



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 12 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.23.

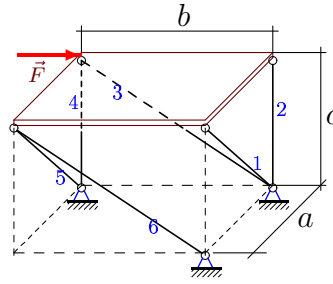
9



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 35 \text{ кН}, G = 24 \text{ кН}.$

Задача S-13.24.

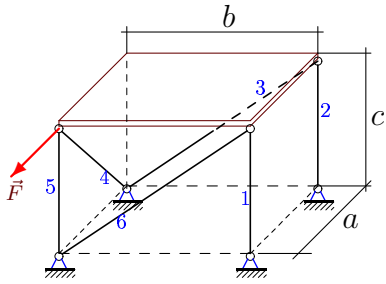
9



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 12 \text{ кН}, G = 10 \text{ кН}.$

Задача S-13.25.

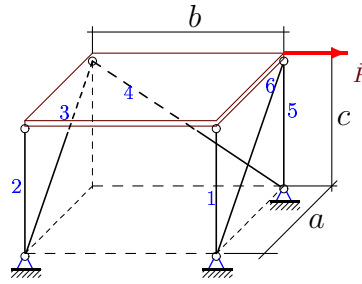
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 56 \text{ кН}, G = 30 \text{ кН}.$

Задача S-13.26.

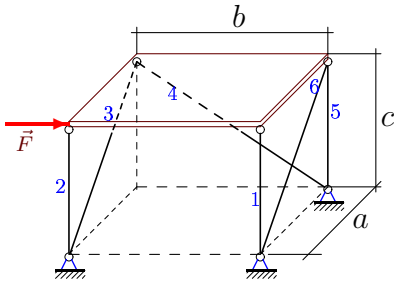
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 32 \text{ кН}, G = 210 \text{ кН}.$

Задача S-13.27.

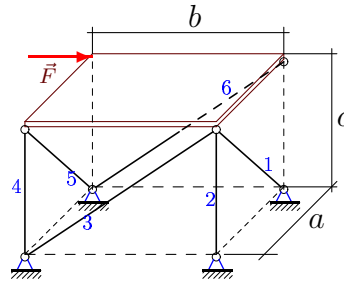
9



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 4 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.28.

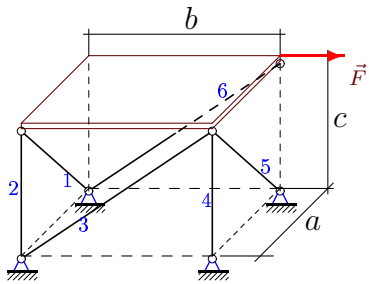
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 8 \text{ кН}, G = 30 \text{ кН}.$

Задача S-13.29.

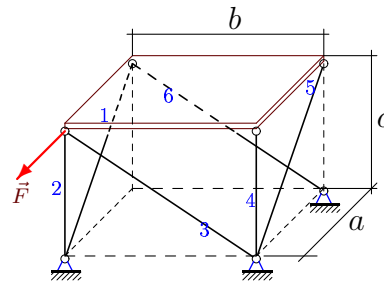
9



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 48 \text{ кН}, G = 150 \text{ кН}.$

Задача S-13.30.

9



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 4 \text{ кН}, G = 6 \text{ кН}.$

S-13

**Ответы.**  
**Равновесие плиты**

16.02.2015

№	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$
1	-60	-119	0	119	-165	119
2	-12	-3	-20	0	-3	0
3	-6	5	0	0	-2	0
4	52	-60	13	0	-52	-52
5	-25	0	40	-39	25	-25
6	6	-9	0	10	-9	0
7	-16	25	-20	0	-16	0
8	8	-35	0	0	-20	0
9	-6	0	-15	17	-6	0
10	-2	-5	3	0	-2	0
11	91	-70	39	20	-91	-91
12	-6	5	-4	0	-6	0
13	-60	21	60	-72	60	-25
14	0	24	-91	0	-60	0
15	5	-9	13	13	-9	-13
16	-15	17	0	-17	0	-17
17	-8	-13	0	13	-20	13
18	-15	24	-15	-16	15	-5
19	0	-15	20	0	-3	0
20	-17	16	-17	-16	17	-17
21	-10	0	-5	13	-10	0
22	0	-8	13	0	-3	0
23	78	-84	-78	144	-169	78
24	13	-10	0	5	-13	-13
25	0	-15	0	119	-120	0
26	-60	-45	0	-68	-45	0
27	-6	3	-5	-5	0	5
28	34	-60	34	15	-34	-17
29	-187	90	187	-330	187	-85
30	-5	0	0	-3	0	0

S-13 файл о13s9A