

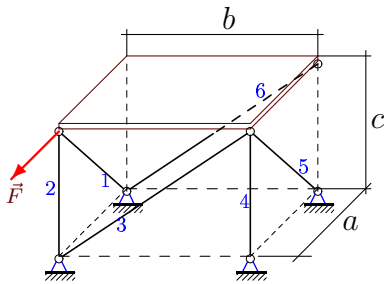
## Равновесие плиты

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

**Задача S-13.1.**

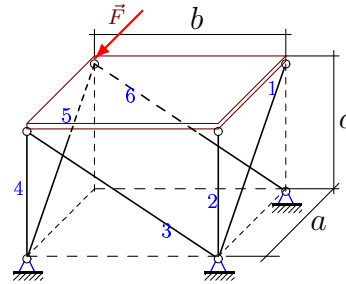
4



$a = b = 3$  м,  $c = 4$  м,  
 $F = 9$  кН,  $G = 8$  кН.

**Задача S-13.2.**

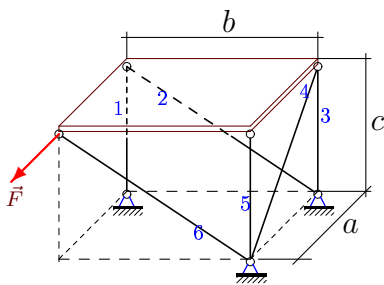
4



$a = b = 12$  м,  $c = 5$  м,  
 $F = 12$  кН,  $G = 10$  кН.

**Задача S-13.3.**

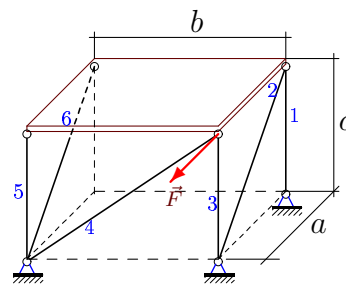
4



$a = b = 15$  м,  $c = 8$  м,  
 $F = 105$  кН,  $G = 48$  кН.

**Задача S-13.4.**

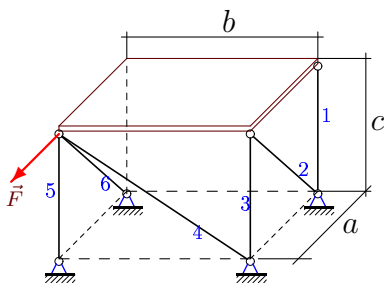
4



$a = b = 15$  м,  $c = 8$  м,  
 $F = 15$  кН,  $G = 96$  кН.

**Задача S-13.5.**

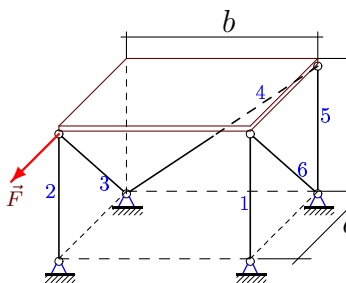
4



$a = b = 12$  м,  $c = 5$  м,  
 $F = 12$  кН,  $G = 12$  кН.

**Задача S-13.6.**

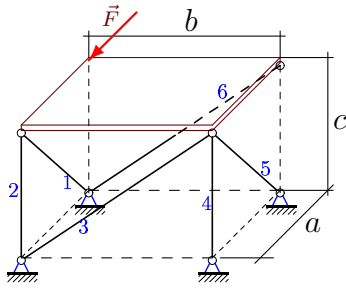
4



$a = b = 15$  м,  $c = 8$  м,  
 $F = 45$  кН,  $G = 40$  кН.

Задача S-13.7.

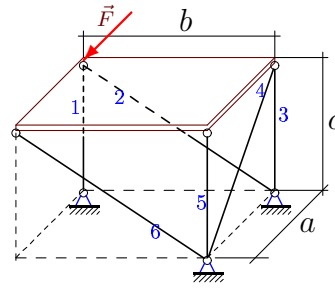
4



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 12 \text{ кН}, G = 24 \text{ кН}.$

Задача S-13.8.

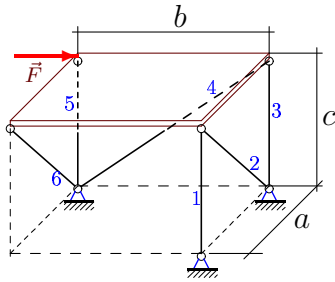
4



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

Задача S-13.9.

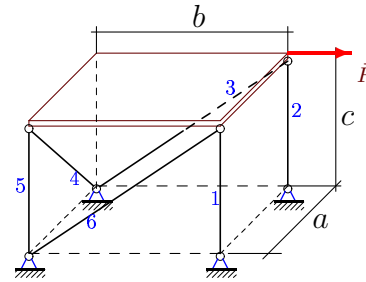
4



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 25 \text{ кН}, G = 48 \text{ кН}.$

Задача S-13.10.

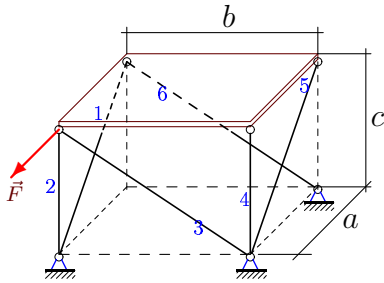
4



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 8 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.11.

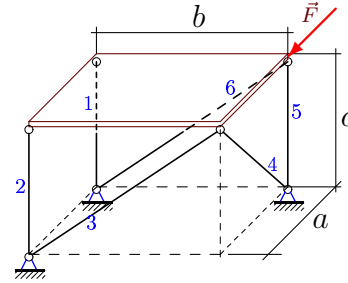
4



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 15 \text{ кН}, G = 24 \text{ кН}.$

Задача S-13.12.

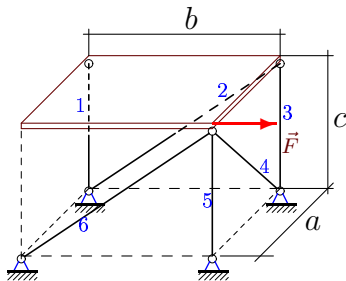
4



$a = b = 12 \text{ м}, c = 5 \text{ м},$   
 $F = 12 \text{ кН}, G = 40 \text{ кН}.$

Задача S-13.13.

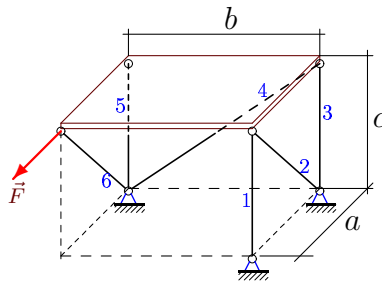
4



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

Задача S-13.14.

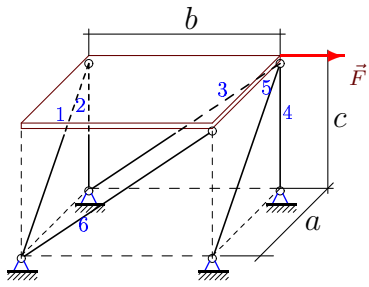
4



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 25 \text{ кН}, G = 72 \text{ кН}.$

Задача S-13.15.

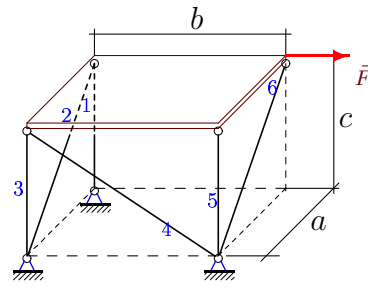
4



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

Задача S-13.16.

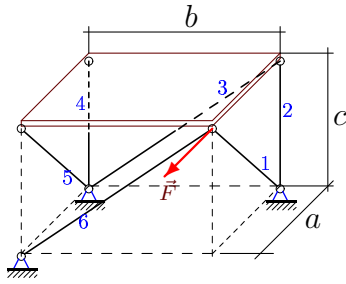
4



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

Задача S-13.17.

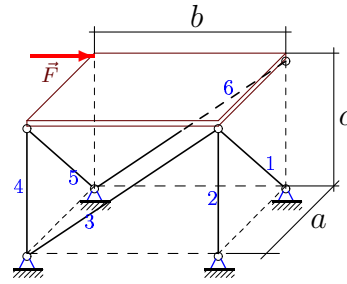
4



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

Задача S-13.18.

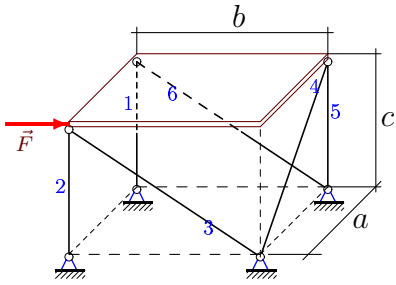
4



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

Задача S-13.19.

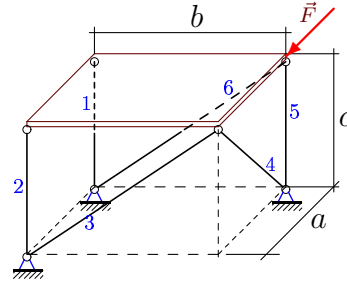
4



$a = b = 15 \text{ м}, c = 8 \text{ м},$   
 $F = 45 \text{ кН}, G = 32 \text{ кН}.$

Задача S-13.20.

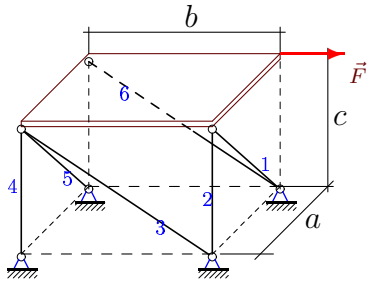
4



$a = b = 8 \text{ м}, c = 15 \text{ м},$   
 $F = 16 \text{ кН}, G = 150 \text{ кН}.$

Задача S-13.21.

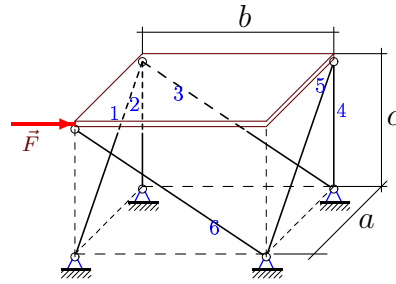
4



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 9 \text{ кН}, G = 56 \text{ кН}.$

Задача S-13.22.

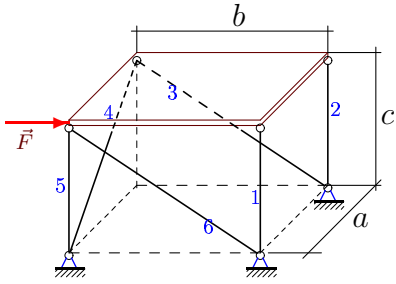
4



$a = b = 3 \text{ м}, c = 4 \text{ м},$   
 $F = 21 \text{ кН}, G = 24 \text{ кН}.$

Задача S-13.23.

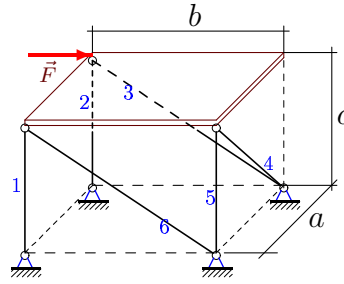
4



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

Задача S-13.24.

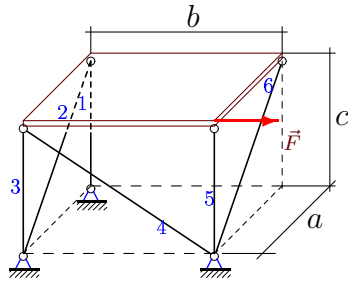
4



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

Задача S-13.25.

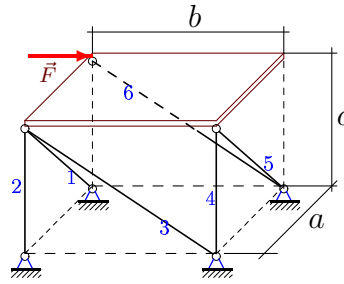
4



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 5 \text{ кН}, G = 18 \text{ кН}.$

Задача S-13.26.

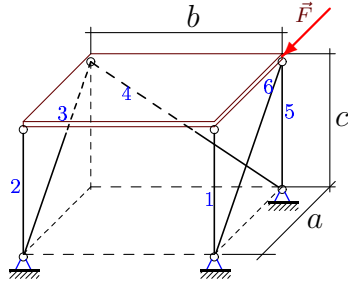
4



$a = b = 5 \text{ м}, c = 12 \text{ м},$   
 $F = 25 \text{ кН}, G = 144 \text{ кН}.$

Задача S-13.27.

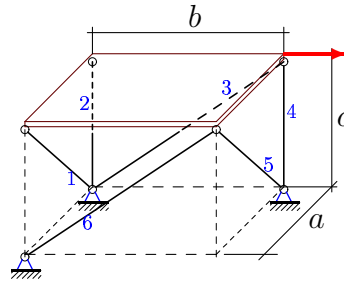
4



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

Задача S-13.28.

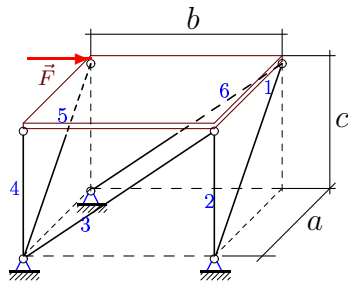
4



$a = b = 4 \text{ м}, c = 3 \text{ м},$   
 $F = 28 \text{ кН}, G = 6 \text{ кН}.$

Задача S-13.29.

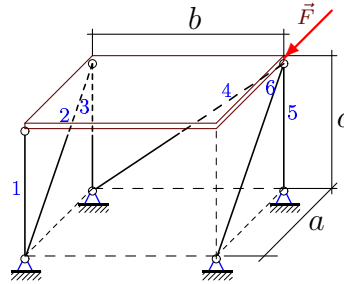
4



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

Задача S-13.30.

4



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

S-13

**Ответы.**  
**Равновесие плиты**

16.02.2015

№	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	$S_6$
1	10	-12	5	-8	5	-5
2	0	-5	0	0	-13	0
3	-24	119	0	-119	32	-119
4	-40	-17	0	0	-48	0
5	-6	0	0	0	-11	13
6	0	-44	51	0	-20	0
7	-5	-9	20	-24	20	-20
8	-6	13	0	-13	-1	-13
9	-24	0	-60	65	-24	0
10	0	-18	17	0	-3	0
11	-15	0	-10	-4	-10	10
12	5	-25	0	13	-25	0
13	-12	0	0	0	-24	13
14	-96	0	60	0	-96	65
15	-17	0	51	-32	17	-17
16	-6	13	0	-13	-1	-13
17	-25	0	60	-68	60	-60
18	34	-60	34	15	-34	-17
19	0	8	-51	0	-16	0
20	30	-105	0	34	-105	0
21	-20	-12	20	-32	20	-35
22	-20	32	-20	-28	20	-15
23	0	-5	0	0	0	-13
24	0	0	-13	0	-12	0
25	-9	0	12	-13	-9	0
26	13	-24	13	-60	-13	-78
27	0	-3	0	0	3	-10
28	5	-6	40	-21	-5	-5
29	-26	0	26	-15	26	-13
30	-3	0	0	0	1	-5

S-13 файл о13s4A