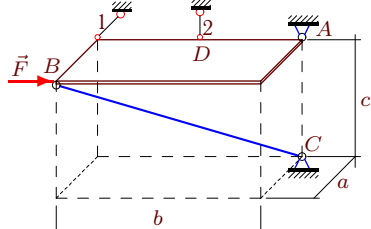


Равновесие полки

Горизонтальная однородная прямоугольная полка весом G имеет в точке A сферическую опору и поддерживается двумя невесомыми, шарнирно закрепленными по концам стержнями (горизонтальным 1 и вертикальным 2) и подпоркой BC . К полке приложена сила F , направленная вдоль одного из ее ребер. Определить реакции опор (в кН).

Кирсанов М.Н. **Решebник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.106.)

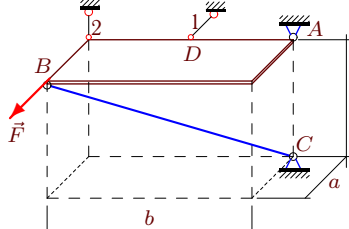
Задача 14.1.



$a = 4 \text{ м},$
 $b = 8 \text{ м},$
 $c = 1 \text{ м},$

$AD = 4 \text{ м}, G = 6 \text{ кН}, F = 8 \text{ кН}.$

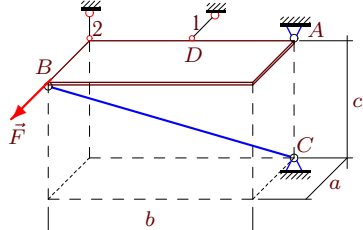
Задача 14.2.



$a = 5 \text{ м},$
 $b = 14 \text{ м},$
 $c = 2 \text{ м},$

$AD = 7 \text{ м}, G = 4 \text{ кН}, F = 7 \text{ кН}.$

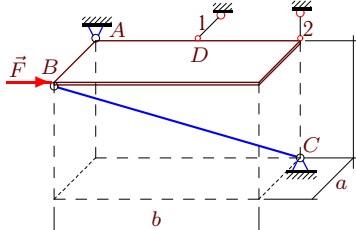
Задача 14.3.



$a = 4 \text{ м},$
 $b = 8 \text{ м},$
 $c = 1 \text{ м},$

$AD = 4 \text{ м}, G = 2 \text{ кН}, F = 2 \text{ кН}.$

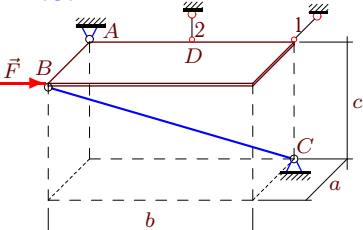
Задача 14.4.



$a = 4 \text{ м},$
 $b = 7 \text{ м},$
 $c = 4 \text{ м},$

$AD = 3 \text{ м}, G = 72 \text{ кН}, F = 6 \text{ кН}.$

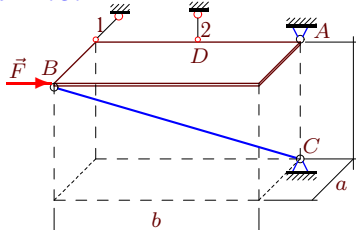
Задача 14.5.



$a = 4 \text{ м},$
 $b = 8 \text{ м},$
 $c = 1 \text{ м},$

$AD = 4 \text{ м}, G = 2 \text{ кН}, F = 2 \text{ кН}.$

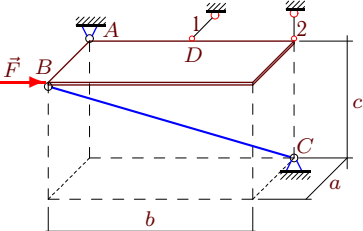
Задача 14.6.



$a = 4 \text{ м},$
 $b = 7 \text{ м},$
 $c = 4 \text{ м},$

$AD = 3 \text{ м}, G = 24 \text{ кН}, F = 14 \text{ кН}.$

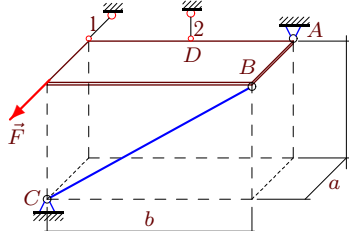
Задача 14.7.



$a = 5 \text{ м},$
 $b = 14 \text{ м},$
 $c = 2 \text{ м},$

$AD = 7 \text{ м}, G = 84 \text{ кН}, F = 7 \text{ кН}.$

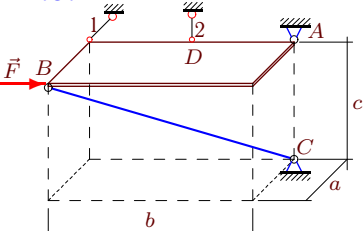
Задача 14.8.



$a = 28 \text{ м},$
 $b = 24 \text{ м},$
 $c = 7 \text{ м},$

$AD = 12 \text{ м}, G = 14 \text{ кН}, F = 2 \text{ кН}.$

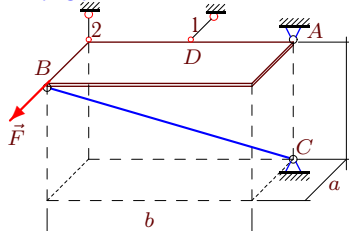
Задача 14.9.



$a = 4 \text{ м},$
 $b = 8 \text{ м},$
 $c = 1 \text{ м},$

$AD = 4 \text{ м}, G = 2 \text{ кН}, F = 4 \text{ кН}.$

Задача 14.10.

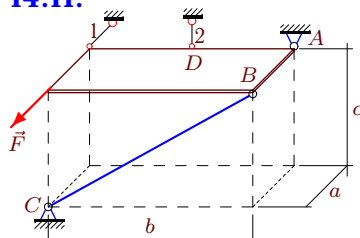


$a = 2 \text{ м},$
 $b = 2 \text{ м},$
 $c = 1 \text{ м},$

$AD = 1 \text{ м}, G = 2 \text{ кН}, F = 2 \text{ кН}.$

Задача 14.11.

10

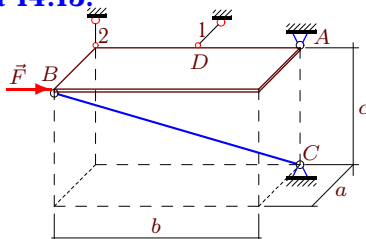


$$\begin{aligned} a &= 11 \text{ м}, \\ b &= 6 \text{ м}, \\ c &= 8 \text{ м}, \end{aligned}$$

$$AD = 3 \text{ м}, G = 16 \text{ кН}, F = 1 \text{ кН}.$$

Задача 14.13.

10

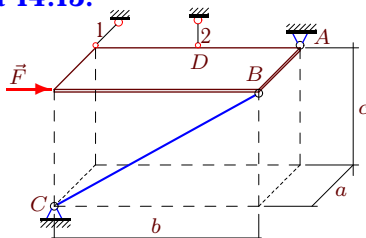


$$\begin{aligned} a &= 6 \text{ м}, \\ b &= 9 \text{ м}, \\ c &= 2 \text{ м}, \end{aligned}$$

$$AD = 4 \text{ м}, G = 12 \text{ кН}, F = 4 \text{ кН}.$$

Задача 14.15.

10

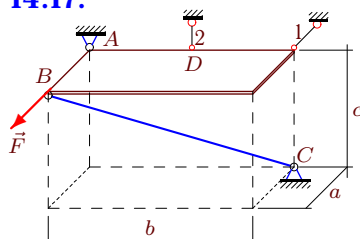


$$\begin{aligned} a &= 18 \text{ м}, \\ b &= 12 \text{ м}, \\ c &= 9 \text{ м}, \end{aligned}$$

$$AD = 6 \text{ м}, G = 18 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.17.

10

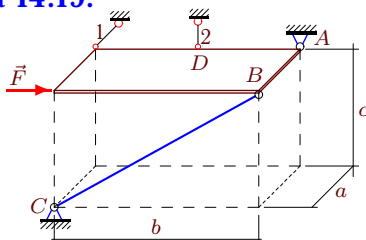


$$\begin{aligned} a &= 4 \text{ м}, \\ b &= 8 \text{ м}, \\ c &= 1 \text{ м}, \end{aligned}$$

$$AD = 4 \text{ м}, G = 6 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.19.

10

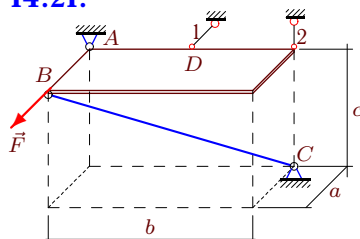


$$\begin{aligned} a &= 18 \text{ м}, \\ b &= 9 \text{ м}, \\ c &= 12 \text{ м}, \end{aligned}$$

$$AD = 4 \text{ м}, G = 64 \text{ кН}, F = 3 \text{ кН}.$$

Задача 14.21.

10

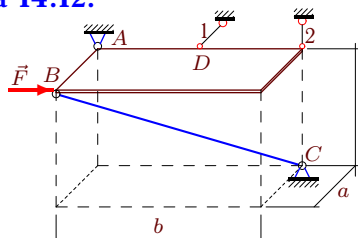


$$\begin{aligned} a &= 6 \text{ м}, \\ b &= 7 \text{ м}, \\ c &= 6 \text{ м}, \end{aligned}$$

$$AD = 3 \text{ м}, G = 12 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.12.

10

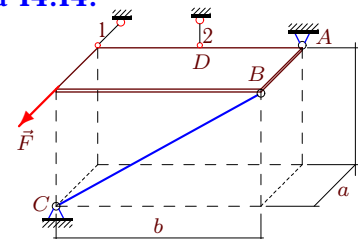


$$\begin{aligned} a &= 7 \text{ м}, \\ b &= 6 \text{ м}, \\ c &= 6 \text{ м}, \end{aligned}$$

$$AD = 3 \text{ м}, G = 108 \text{ кН}, F = 3 \text{ кН}.$$

Задача 14.14.

10

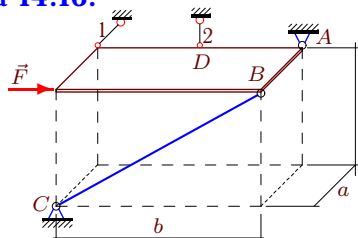


$$\begin{aligned} a &= 19 \text{ м}, \\ b &= 9 \text{ м}, \\ c &= 12 \text{ м}, \end{aligned}$$

$$AD = 4 \text{ м}, G = 384 \text{ кН}, F = 9 \text{ кН}.$$

Задача 14.16.

10

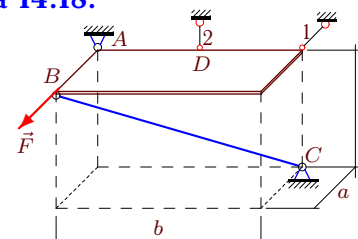


$$\begin{aligned} a &= 20 \text{ м}, \\ b &= 15 \text{ м}, \\ c &= 8 \text{ м}, \end{aligned}$$

$$AD = 7 \text{ м}, G = 224 \text{ кН}, F = 15 \text{ кН}.$$

Задача 14.18.

10

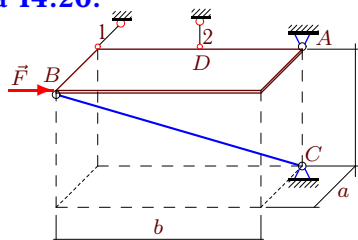


$$\begin{aligned} a &= 5 \text{ м}, \\ b &= 14 \text{ м}, \\ c &= 2 \text{ м}, \end{aligned}$$

$$AD = 7 \text{ м}, G = 12 \text{ кН}, F = 4 \text{ кН}.$$

Задача 14.20.

10

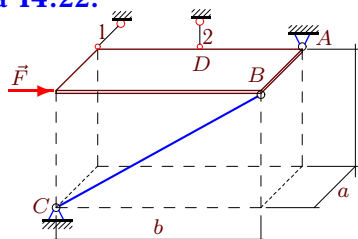


$$\begin{aligned} a &= 3 \text{ м}, \\ b &= 6 \text{ м}, \\ c &= 2 \text{ м}, \end{aligned}$$

$$AD = 3 \text{ м}, G = 4 \text{ кН}, F = 6 \text{ кН}.$$

Задача 14.22.

10

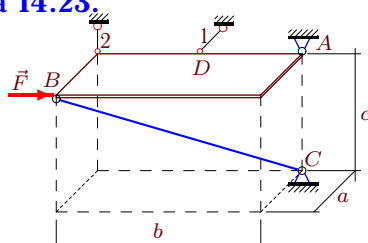


$$\begin{aligned} a &= 18 \text{ м}, \\ b &= 12 \text{ м}, \\ c &= 9 \text{ м}, \end{aligned}$$

$$AD = 6 \text{ м}, G = 36 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.23.

10

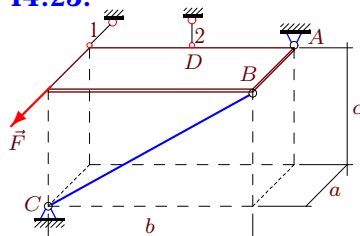


$$a = 4 \text{ м}, \\ b = 8 \text{ м}, \\ c = 1 \text{ м},$$

$$AD = 4 \text{ м}, G = 2 \text{ кН}, F = 1 \text{ кН}.$$

Задача 14.25.

10

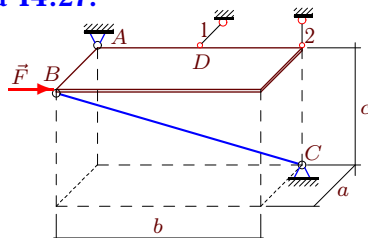


$$a = 28 \text{ м}, \\ b = 24 \text{ м}, \\ c = 7 \text{ м},$$

$$AD = 12 \text{ м}, G = 14 \text{ кН}, F = 1 \text{ кН}.$$

Задача 14.27.

10

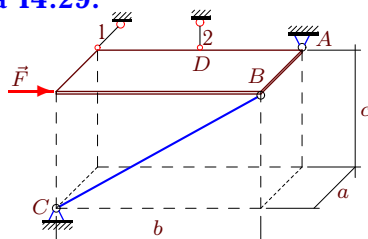


$$a = 6 \text{ м}, \\ b = 9 \text{ м}, \\ c = 2 \text{ м},$$

$$AD = 4 \text{ м}, G = 4 \text{ кН}, F = 1 \text{ кН}.$$

Задача 14.29.

10

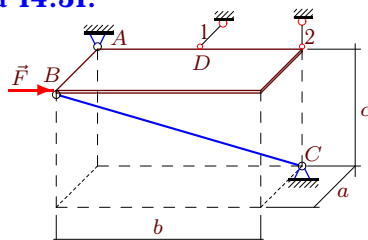


$$a = 13 \text{ м}, \\ b = 12 \text{ м}, \\ c = 5 \text{ м},$$

$$AD = 6 \text{ м}, G = 90 \text{ кН}, F = 12 \text{ кН}.$$

Задача 14.31.

10

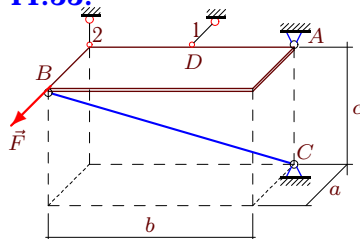


$$a = 4 \text{ м}, \\ b = 8 \text{ м}, \\ c = 1 \text{ м},$$

$$AD = 4 \text{ м}, G = 4 \text{ кН}, F = 1 \text{ кН}.$$

Задача 14.33.

10

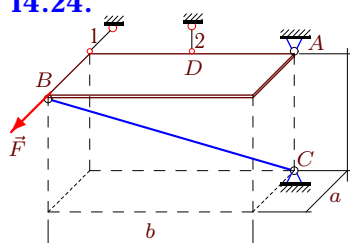


$$a = 3 \text{ м}, \\ b = 6 \text{ м}, \\ c = 2 \text{ м},$$

$$AD = 3 \text{ м}, G = 4 \text{ кН}, F = 3 \text{ кН}.$$

Задача 14.24.

10

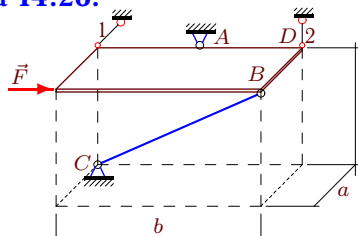


$$a = 4 \text{ м}, \\ b = 8 \text{ м}, \\ c = 1 \text{ м},$$

$$AD = 4 \text{ м}, G = 2 \text{ кН}, F = 16 \text{ кН}.$$

Задача 14.26.

10

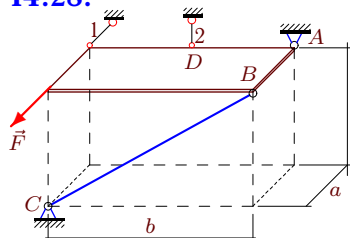


$$a = 6 \text{ м}, \\ b = 7 \text{ м}, \\ c = 6 \text{ м},$$

$$AD = 3 \text{ м}, G = 72 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.28.

10

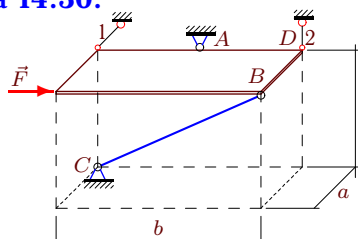


$$a = 11 \text{ м}, \\ b = 6 \text{ м}, \\ c = 8 \text{ м},$$

$$AD = 3 \text{ м}, G = 16 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.30.

10

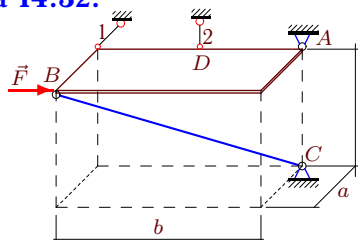


$$a = 3 \text{ м}, \\ b = 6 \text{ м}, \\ c = 2 \text{ м},$$

$$AD = 3 \text{ м}, G = 12 \text{ кН}, F = 2 \text{ кН}.$$

Задача 14.32.

10

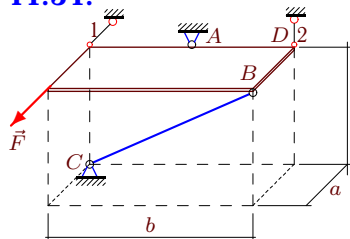


$$a = 4 \text{ м}, \\ b = 8 \text{ м}, \\ c = 1 \text{ м},$$

$$AD = 4 \text{ м}, G = 6 \text{ кН}, F = 8 \text{ кН}.$$

Задача 14.34.

10



$$a = 6 \text{ м}, \\ b = 7 \text{ м}, \\ c = 6 \text{ м},$$

$$AD = 3 \text{ м}, G = 36 \text{ кН}, F = 2 \text{ кН}.$$

Равновесие полки

	H	V	X_A	Y_A	Z_A	S
1	4	0	-16	16	3	-27
2	-14	0	2	14	2	-15
3	-4	0	-2	8	1	-9
4	-76	36	40	57	0	-81
5	-3	2	-1	6	-1	-9
6	8	0	-20	7	12	-27
7	-205	42	100	287	0	-315
8	-30	14	28	-24	-7	-25
9	2	0	-6	4	1	-9
10	-4	0	0	2	1	-3
11	-12	16	11	-6	-8	-10
12	-119	54	56	51	0	-99
13	6	0	-24	23	6	-33
14	-313	432	304	-144	-240	-240
15	-21	18	21	-14	-9	-15
16	-300	240	300	-225	-128	-238
17	-12	6	-2	24	-3	-27
18	-15	12	-4	42	-6	-45
19	-54	72	54	-27	-40	-40
20	3	0	-6	0	2	-7
21	-14	6	6	7	0	-11
22	-39	36	39	-26	-18	-30
23	1	0	-5	7	1	-9
24	-16	0	-4	8	1	-9
25	-29	14	28	-24	-7	-25
26	-39	-48	3	-44	84	-66
27	-12	2	6	8	0	-11
28	-13	16	11	-6	-8	-10
29	-130	90	130	-120	-45	-117
30	-11	-6	2	-20	12	-21
31	-15	2	7	15	0	-18
32	4	0	-16	16	3	-27
33	-6	0	0	6	2	-7
34	-20	-24	0	-21	42	-33