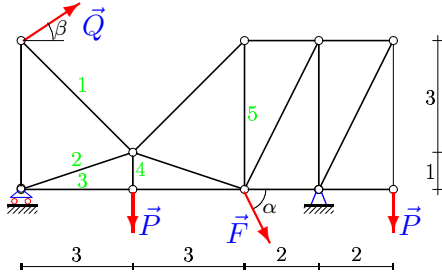


# Расчет фермы (стойки)

Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.–  
М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.37.)

**Задача S-5.1.**

*Алиусманов Гейдар*

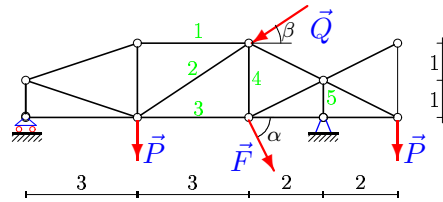


$$P = 40 \text{ кН}, Q = 90 \text{ кН}, F = 52 \text{ кН},$$

$$\alpha = 75^\circ, \beta = 45^\circ.$$

**Задача S-5.2.**

*Умаров Акбар*

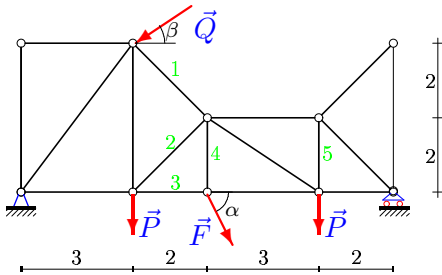


$$P = 80 \text{ кН}, Q = 70 \text{ кН}, F = 39 \text{ кН},$$

$$\alpha = 50^\circ, \beta = 45^\circ.$$

**Задача S-5.3.**

*Ратников Валерий*

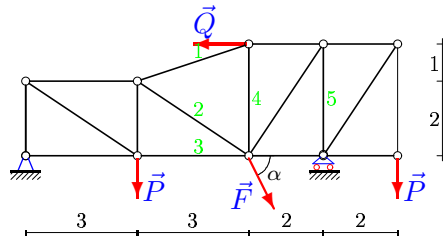


$$P = 80 \text{ кН}, Q = 90 \text{ кН}, F = 41 \text{ кН},$$

$$\alpha = 50^\circ, \beta = 15^\circ.$$

**Задача S-5.4.**

*Ланкин Алексей*

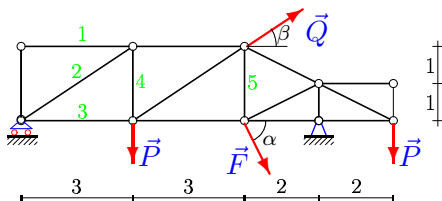


$$P = 90 \text{ кН}, Q = 50 \text{ кН},$$

$$F = 40 \text{ кН}, \alpha = 55^\circ.$$

**Задача S-5.5.**

*Демьшев Филипп*

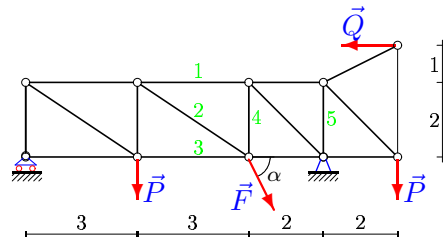


$$P = 50 \text{ кН}, Q = 80 \text{ кН}, F = 50 \text{ кН},$$

$$\alpha = 35^\circ, \beta = 45^\circ.$$

**Задача S-5.6.**

*Любуцкий Алексей*

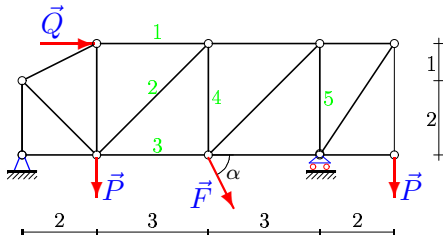


$$P = 20 \text{ кН}, Q = 80 \text{ кН},$$

$$F = 50 \text{ кН}, \alpha = 65^\circ.$$

**Задача S-5.7.**

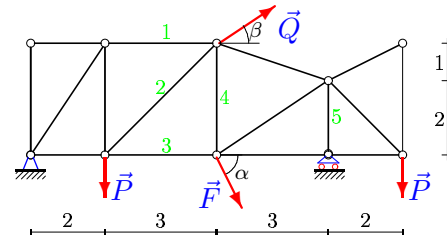
Сабиров Сабир



$P = 80 \text{ кН}, Q = 90 \text{ кН},$   
 $F = 33 \text{ кН}, \alpha = 50^\circ.$

**Задача S-5.8.**

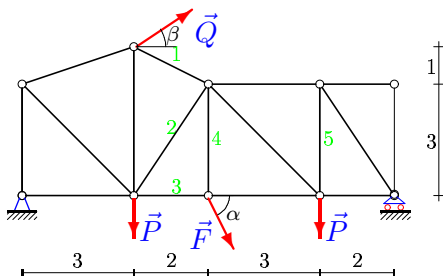
Гурьянова Ксения



$P = 10 \text{ кН}, Q = 80 \text{ кН}, F = 36 \text{ кН},$   
 $\alpha = 60^\circ, \beta = 15^\circ.$

**Задача S-5.9.**

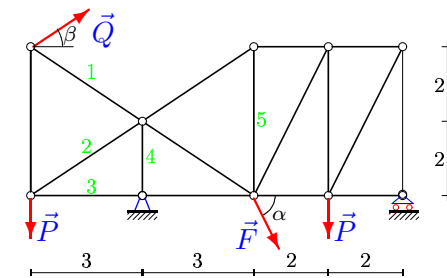
Горелова Валерия



$P = 90 \text{ кН}, Q = 70 \text{ кН}, F = 48 \text{ кН},$   
 $\alpha = 55^\circ, \beta = 15^\circ.$

**Задача S-5.10.**

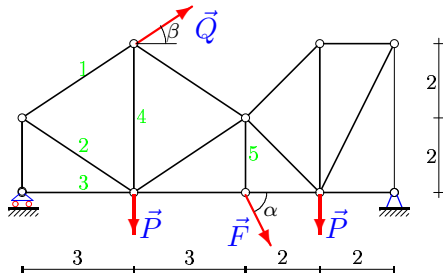
Минина Дарья



$P = 40 \text{ кН}, Q = 50 \text{ кН}, F = 32 \text{ кН},$   
 $\alpha = 75^\circ, \beta = 30^\circ.$

**Задача S-5.11.**

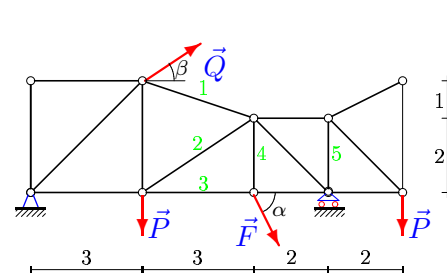
Юриков Максим



$P = 50 \text{ кН}, Q = 50 \text{ кН}, F = 42 \text{ кН},$   
 $\alpha = 35^\circ, \beta = 30^\circ.$

**Задача S-5.12.**

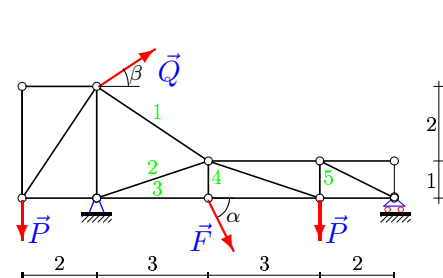
Сабиров Сырым



$P = 60 \text{ кН}, Q = 60 \text{ кН}, F = 48 \text{ кН},$   
 $\alpha = 40^\circ, \beta = 15^\circ.$

**Задача S-5.13.**

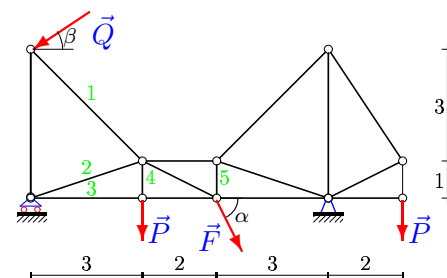
Захаров Павел



$P = 30 \text{ кН}, Q = 80 \text{ кН}, F = 34 \text{ кН},$   
 $\alpha = 70^\circ, \beta = 30^\circ.$

**Задача S-5.14.**

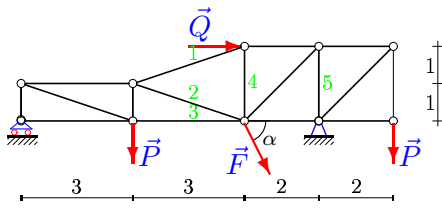
Чулков Данила



$P = 50 \text{ кН}, Q = 70 \text{ кН}, F = 31 \text{ кН},$   
 $\alpha = 35^\circ, \beta = 45^\circ.$

**Задача S-5.15.**

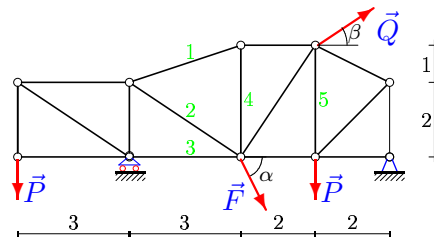
*Грошовик Сергей*



$P = 30 \text{ кН}, Q = 30 \text{ кН},$   
 $F = 49 \text{ кН}, \alpha = 70^\circ.$

**Задача S-5.16.**

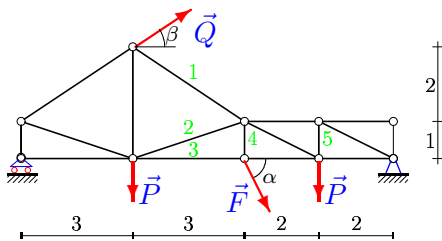
*Мясников Сергей*



$P = 60 \text{ кН}, Q = 30 \text{ кН}, F = 34 \text{ кН},$   
 $\alpha = 40^\circ, \beta = 45^\circ.$

**Задача S-5.17.**

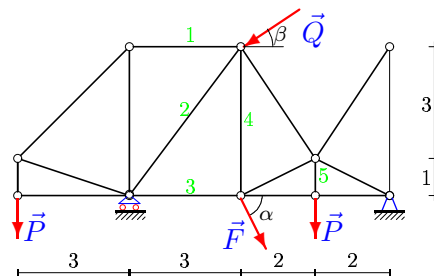
*Титимов Диас*



$P = 60 \text{ кН}, Q = 70 \text{ кН}, F = 54 \text{ кН},$   
 $\alpha = 40^\circ, \beta = 30^\circ.$

**Задача S-5.18.**

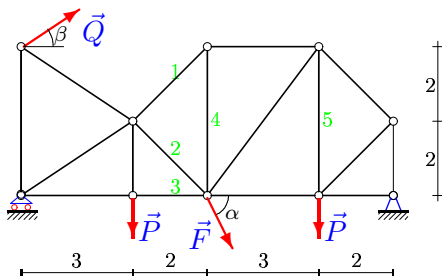
*Шомирсаидов Фаридун*



$P = 80 \text{ кН}, Q = 90 \text{ кН}, F = 43 \text{ кН},$   
 $\alpha = 50^\circ, \beta = 45^\circ.$

**Задача S-5.19.**

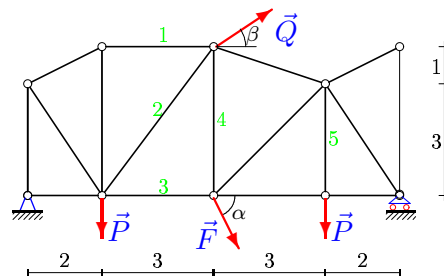
*Окладников Григорий*



$P = 80 \text{ кН}, Q = 60 \text{ кН}, F = 24 \text{ кН},$   
 $\alpha = 50^\circ, \beta = 30^\circ.$

**Задача S-5.20.**

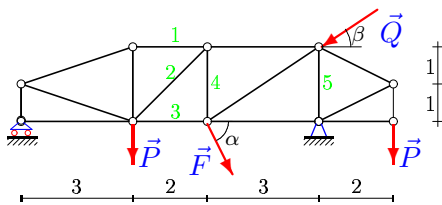
*Ибрагимов Ибрагим*



$P = 70 \text{ кН}, Q = 60 \text{ кН}, F = 40 \text{ кН},$   
 $\alpha = 45^\circ, \beta = 15^\circ.$

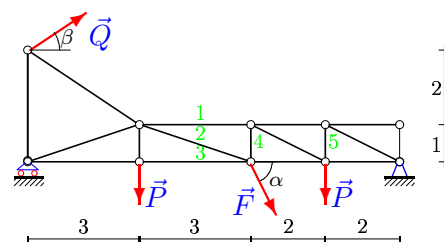
**Задача S-5.21.**

*Камариден Али*



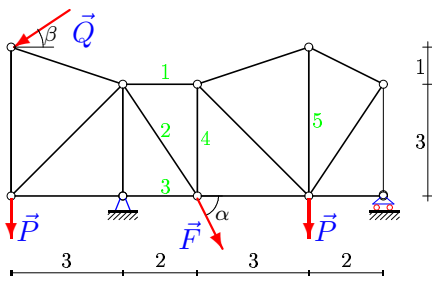
$P = 20 \text{ кН}, Q = 90 \text{ кН}, F = 47 \text{ кН},$   
 $\alpha = 65^\circ, \beta = 45^\circ.$

**Задача S-5.22.**



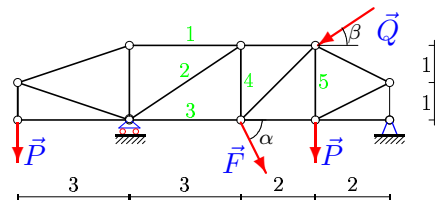
$P = 90 \text{ кН}, Q = 40 \text{ кН}, F = 54 \text{ кН},$   
 $\alpha = 55^\circ, \beta = 30^\circ.$

**Задача S-5.23.**



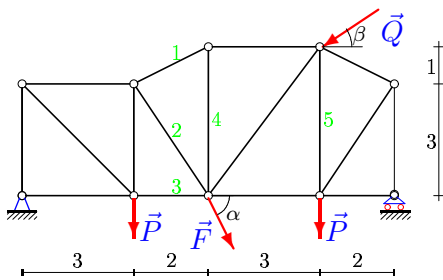
$P = 90 \text{ кН}, Q = 70 \text{ кН}, F = 43 \text{ кН},$   
 $\alpha = 55^\circ, \beta = 30^\circ.$

**Задача S-5.24.**



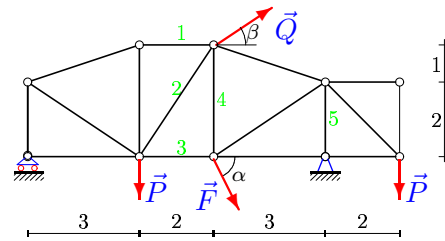
$P = 30 \text{ кН}, Q = 70 \text{ кН}, F = 47 \text{ кН},$   
 $\alpha = 70^\circ, \beta = 45^\circ.$

**Задача S-5.25.**



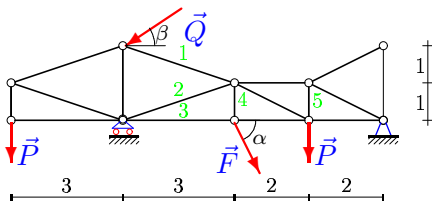
$P = 30 \text{ кН}, Q = 80 \text{ кН}, F = 51 \text{ кН},$   
 $\alpha = 70^\circ, \beta = 15^\circ.$

**Задача S-5.26.**



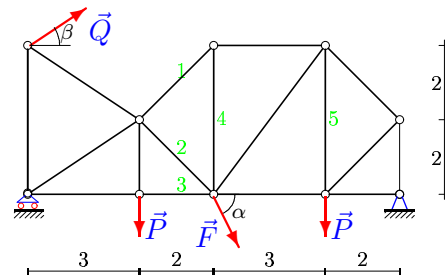
$P = 70 \text{ кН}, Q = 80 \text{ кН}, F = 44 \text{ кН},$   
 $\alpha = 45^\circ, \beta = 45^\circ.$

**Задача S-5.27.**



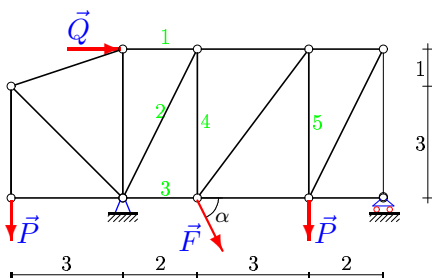
$P = 10 \text{ кН}, Q = 70 \text{ кН}, F = 59 \text{ кН},$   
 $\alpha = 60^\circ, \beta = 45^\circ.$

**Задача S-5.28.**



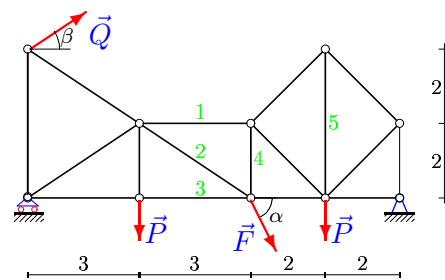
$P = 70 \text{ кН}, Q = 60 \text{ кН}, F = 38 \text{ кН},$   
 $\alpha = 45^\circ, \beta = 30^\circ.$

**Задача S-5.29.**



$P = 90 \text{ кН}, Q = 70 \text{ кН},$   
 $F = 23 \text{ кН}, \alpha = 55^\circ.$

**Задача S-5.30.**



$P = 60 \text{ кН}, Q = 50 \text{ кН}, F = 56 \text{ кН},$   
 $\alpha = 40^\circ, \beta = 30^\circ.$

**Ответы.**

**Расчет фермы (стойки)**

17-Мар-20

	$X_A$	$Y_A$	$R_B$	$S_1$	$S_2$	$S_3$	$S_4$	$S_5$	
1	-77.098	134.491	-67.902	-90.000	-187.766	178.131	40.000	27.245	Алиусманов Гейдар
2	24.429	177.156	62.218	-93.327	32.058	66.653	-58.702	-177.156	Умаров Акбар
3	60.579	138.783	75.919	-24.259	-74.448	96.151	31.408	75.919	Ратников Валерий
4	27.057	60.692	152.075	-33.081	-71.695	63.980	10.461	-62.075	Ланкин Алексей
5	-97.526	74.475	-2.365	0.000	4.263	-3.547	-2.365	-8.559	Демышев Филипп
6	58.869	36.487	48.829	-116.487	51.972	73.243	16.487	-20.000	Любуцкий Алексей
7	-111.212	15.730	169.550	-100.487	90.892	57.428	-64.270	-89.550	Сабилов Сабир
8	-95.274	-20.051	50.522	13.367	42.499	51.856	1.940	-50.522	Гурьянова Ксения
9	-95.146	60.932	140.270	-126.688	-54.931	171.316	39.319	140.270	Горелова Валерия
10	-51.583	25.776	60.133	-52.042	-25.000	20.801	-25.776	26.756	Минина Дарья
11	-77.706	79.275	19.816	-17.862	17.862	0.000	73.683	24.090	Юриков Максим
12	-94.726	-1.226	136.550	-59.799	48.290	53.320	30.854	-60.000	Сабыров Сырым
13	-80.911	-1.012	52.962	-59.230	-132.317	186.438	31.950	52.962	Захаров Павел
14	24.104	67.614	99.664	70.000	-2.116	2.007	50.000	17.614	Чулков Данила
15	-46.759	90.784	15.261	-0.826	-47.434	45.784	0.261	-60.784	Грошовик Сергей
16	-47.259	20.448	100.193	20.878	84.362	-90.000	-6.602	46.368	Мясников Сергей
17	-101.988	94.513	25.198	-103.142	-181.548	197.430	34.711	94.513	Титимов Диас
18	36.000	27.883	228.697	60.000	-185.871	51.522	66.881	80.000	Шомирсаидов Фаридун
19	-67.388	117.977	30.408	-123.703	-151.411	142.573	87.471	21.011	Окладников Григорий
20	-86.240	53.195	99.560	-26.598	21.006	100.234	22.708	70.000	Ибрагимов Ибрагим
21	43.777	106.852	39.384	-59.075	-27.413	78.459	19.384	-96.852	Камариден Али
22	-65.614	135.933	68.301	-363.731	-5.372	334.186	45.933	135.933	
23	35.958	264.086	-13.863	113.105	167.161	-181.165	-103.863	-5.776	
24	33.423	48.713	104.950	45.000	-135.119	67.425	74.950	5.644	
25	59.831	86.013	42.617	-103.436	11.724	26.182	46.258	-1.963	
26	-87.681	119.053	-4.509	4.509	89.549	-54.182	-17.145	-119.053	
27	19.997	10.613	109.980	67.986	-91.653	71.950	51.095	10.613	
28	-78.832	111.220	25.650	-122.364	-142.658	135.437	86.525	14.390	
29	-83.192	127.743	71.097	-2.500	-42.198	34.564	37.743	18.903	
30	-86.200	104.918	26.078	-149.836	-16.084	119.918	44.918	104.918	

S-5 файл 5sod-AnsA