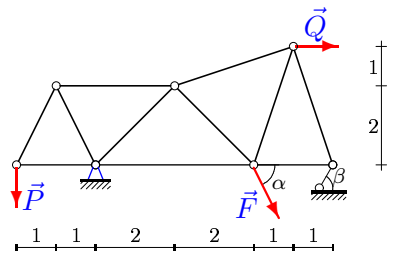
Расчет фермы (треугольная решетка)

Найти усилия в стержнях плоской фермы. Размеры даны в метрах.

Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.45.)

Задача S-6.1.

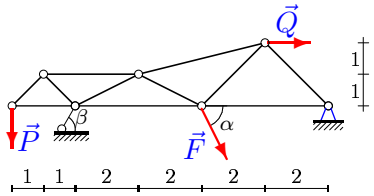
22



$P = 25$ кн,
$F = 6$ кн,
$Q = 20$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.2.

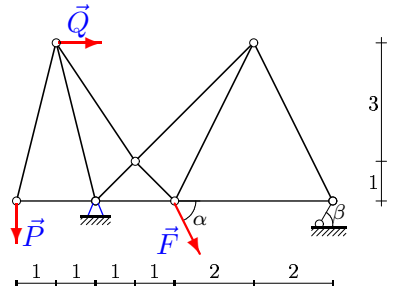
22



$P = 30$ кн,
$F = 29$ кн,
$Q = 60$ кн,
$\alpha = 60°$,
$\beta = 45°$.

Задача S-6.3.

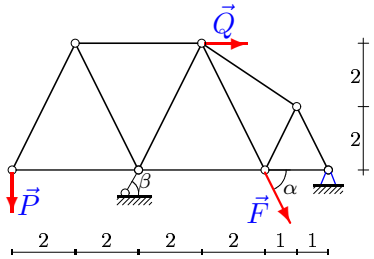
22



$P = 40$ кн,
$F = 16$ кн,
$Q = 40$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.4.

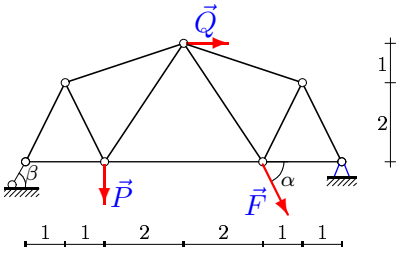
22



$P = 25$ кн,
$F = 11$ кн,
$Q = 30$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.5.

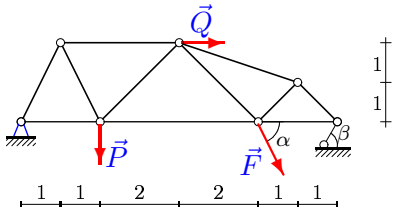
22



$P = 40$ кн,
$F = 5$ кн,
$Q = 20$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.6.

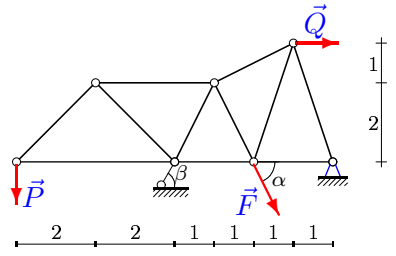
22



$P = 10$ кн,
$F = 4$ кн,
$Q = 20$ кн,
$\alpha = 40°$,
$\beta = 30°$.

Задача S-6.7.

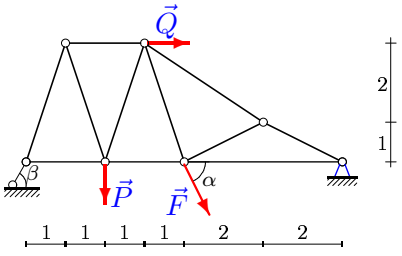
22



$P = 15$ кн,
$F = 6$ кн,
$Q = 10$ кн,
$\alpha = 45°$,
$\beta = 30°$.

Задача S-6.8.

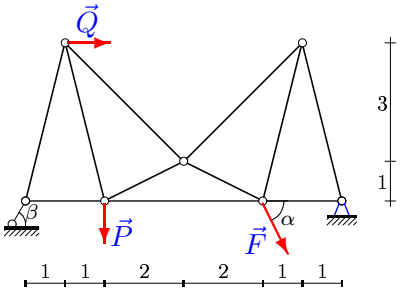
22



$P = 45$ кн,
$F = 2$ кн,
$Q = 40$ кн,
$\alpha = 75°$,
$\beta = 60°$.

Задача S-6.9.

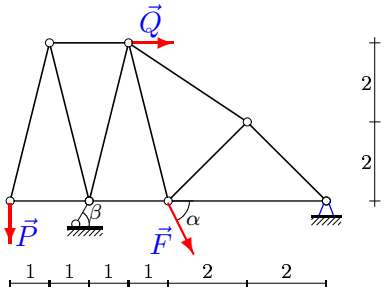
22



$P = 20$ кн,
$F = 26$ кн,
$Q = 20$ кн,
$\alpha = 50°$,
$\beta = 45°$.

Задача S-6.10.

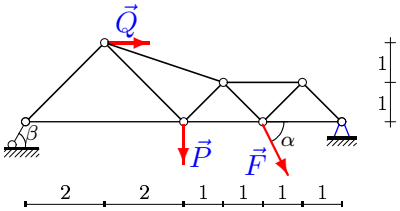
22



$P = 20$ кн,
$F = 6$ кн,
$Q = 40$ кн,
$\alpha = 50°$,
$\beta = 45°$.

Задача S-6.11.

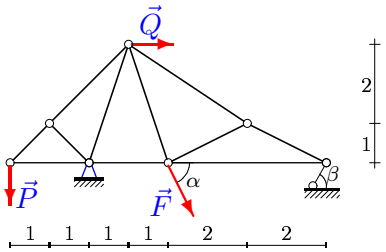
22



$P = 30$ кн,
$F = 13$ кн,
$Q = 10$ кн,
$\alpha = 60°$,
$\beta = 45°$.

Задача S-6.12.

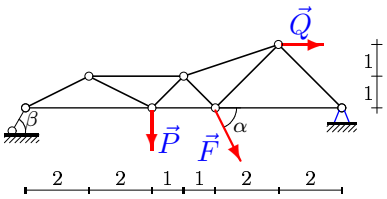
22



$P = 25$ кн,
$F = 28$ кн,
$Q = 40$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.13.

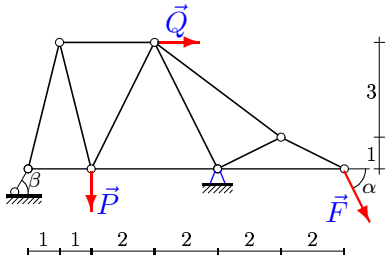
22



$P = 30$ кн,
$F = 29$ кн,
$Q = 50$ кн,
$\alpha = 60°$,
$\beta = 45°$.

Задача S-6.14.

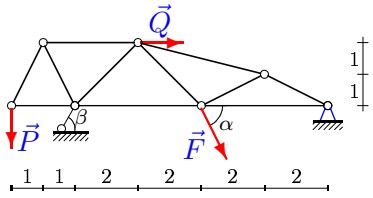
22



$P = 35$ кн,
$F = 30$ кн,
$Q = 60$ кн,
$\alpha = 65°$,
$\beta = 45°$.

Задача S-6.15.

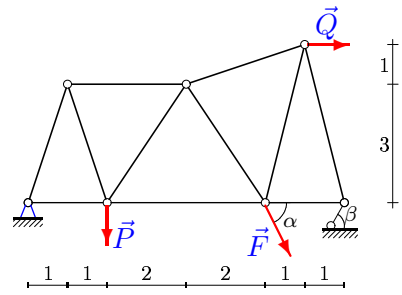
22



$P = 30$ кн,
$F = 19$ кн,
$Q = 60$ кн,
$\alpha = 60°$,
$\beta = 45°$.

Задача S-6.16.

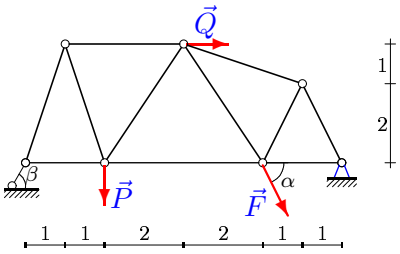
22



$P = 25$ кн,
$F = 22$ кн,
$Q = 20$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.17.

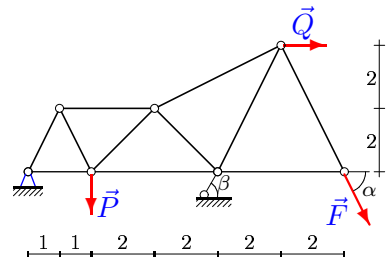
22



$P = 5$ кн,
$F = 7$ кн,
$Q = 20$ кн,
$\alpha = 35°$,
$\beta = 30°$.

Задача S-6.18.

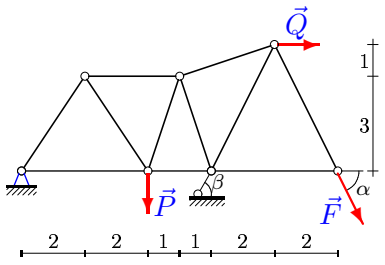
22



$P = 25$ кн,
$F = 22$ кн,
$Q = 60$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.19.

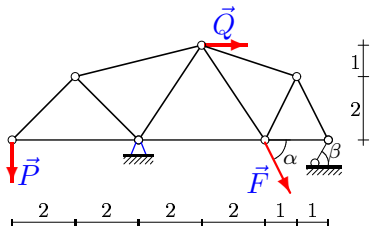
22



$P = 40$ кн,
$F = 3$ кн,
$Q = 50$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.20.

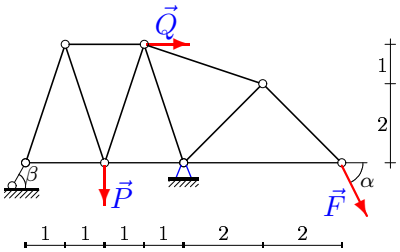
22



$P = 45$ кн,
$F = 29$ кн,
$Q = 30$ кн,
$\alpha = 75°$,
$\beta = 60°$.

Задача S-6.21.

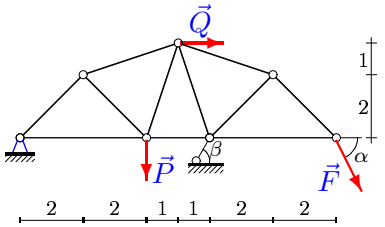
22



$P = 5$ кн,
$F = 6$ кн,
$Q = 40$ кн,
$\alpha = 35°$,
$\beta = 30°$.

Задача S-6.22.

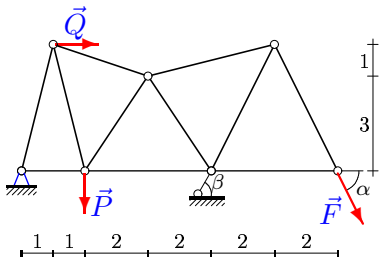
22



$P = 25$ кн,
$F = 30$ кн,
$Q = 50$ кн,
$\alpha = 55°$,
$\beta = 45°$.

Задача S-6.23.

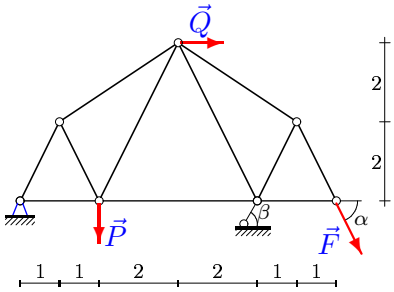
22



$P = 35$ кн,
$F = 1$ кн,
$Q = 60$ кн,
$\alpha = 65°$,
$\beta = 45°$.

Задача S-6.24.

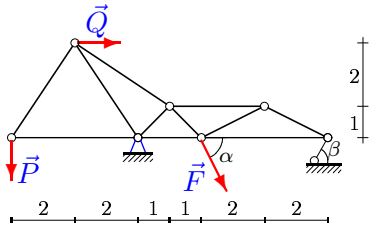
22



$P = 40$ кн,
$F = 22$ кн,
$Q = 20$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.25.

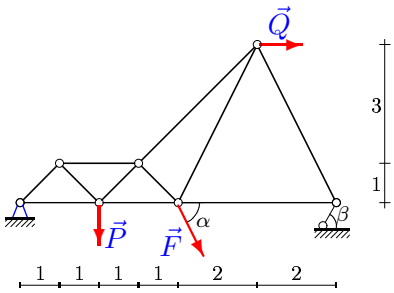
22



$P = 40$ кн,
$F = 19$ кн,
$Q = 50$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.26.

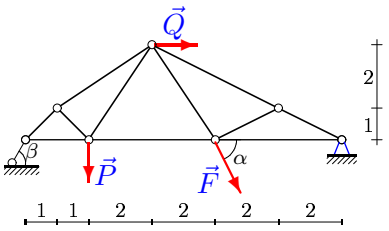
22



$P = 40$ кн,
$F = 5$ кн,
$Q = 40$ кн,
$\alpha = 70°$,
$\beta = 60°$.

Задача S-6.27.

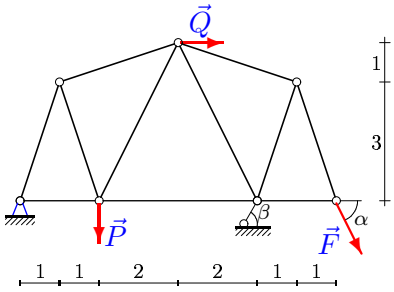
22



$P = 20$ кн,
$F = 15$ кн,
$Q = 60$ кн,
$\alpha = 50°$,
$\beta = 45°$.

Задача S-6.28.

22



$P = 30$ кн,
$F = 29$ кн,
$Q = 20$ кн,
$\alpha = 60°$,
$\beta = 45°$.

Ответы.

Расчет фермы (треугольная решетка)

09-Nov-20

	X_A	Y_A	R_B	U_1	U_2	U_3	O_1	O_2	O_3	O_4	D_1	D_2	D_3	D_4
1	-28.385	24.972	6.991	-12.500	3.356	6.591	27.951	25.000	19.809	-5.211	-27.951	0.040	8.819	-1.392
2	-109.557	20.057	49.579	-30.000	-84.943	-89.500	42.426	60.000	27.330	-28.365	-42.426	-11.309	26.130	18.991
3	-56.064	36.690	21.183	-10.000	92.754	19.764	41.231	-57.689	-51.888	-20.510	8.246	-63.201	-56.569	61.531
4	-60.980	9.340	34.889	-12.500	-49.835	-56.309	27.951	25.000	-8.419	-10.443	-27.951	0.369	4.853	5.221
5	-35.379	21.024	27.337	-1.831	-8.769	-24.867	-26.469	-21.390	-18.995	-23.505	18.906	27.750	-12.401	16.790
6	-39.395	3.143	18.857	40.966	35.680	25.759	-3.514	-3.143	-14.908	-13.334	3.514	9.698	-3.031	6.667
7	-56.888	-5.379	49.243	-15.000	-67.835	-58.681	21.213	30.000	18.227	5.670	-21.213	-10.757	19.871	-14.262
8	-51.901	27.216	22.766	-4.811	-6.667	2.531	-20.782	-13.144	-56.073	-60.857	20.782	26.652	6.135	-8.694
9	-46.692	29.938	14.113	-7.484	49.938	-39.207	-10.286	-47.121	-28.226	-30.859	44.631	-52.098	-67.036	51.432
10	-46.921	21.532	4.333	-5.000	-17.298	-25.389	20.616	10.000	-31.054	-30.451	-20.616	17.457	0.299	6.090
11	-31.815	25.944	21.658	0.000	41.258	-5.871	-21.658	-64.240	-51.887	-36.690	50.387	-7.961	-20.768	36.690
12	-75.372	28.624	27.311	-25.000	59.914	57.936	35.355	35.355	-39.789	-43.183	0.000	-30.173	27.085	-6.169
13	-82.546	37.069	25.521	18.046	42.184	-45.477	-40.352	-72.184	-38.165	-52.423	40.352	16.906	-33.974	69.491
14	-37.886	96.982	-49.204	26.095	-17.500	-41.700	35.864	17.396	54.378	60.797	-35.864	78.031	-114.509	12.159
15	-100.227	15.727	43.455	-15.000	-60.000	-68.773	33.541	30.000	-43.230	-35.167	-33.541	-1.028	15.856	11.722
16	-62.385	13.255	42.095	66.803	63.392	37.208	-13.972	-8.837	5.884	-30.682	13.972	14.115	-11.879	28.764
17	-20.977	11.761	-5.492	3.841	-2.238	-15.097	2.895	1.831	-10.626	-13.150	-2.895	9.310	-5.271	9.393
18	-150.988	-35.348	110.830	133.314	55.292	3.608	39.520	35.348	116.307	20.148	-39.520	85.344	-11.785	-78.302
19	-88.380	-21.879	74.707	73.793	38.581	-0.383	26.296	29.173	66.811	3.152	-26.296	65.227	-42.956	-26.773
20	-39.627	69.337	4.243	-45.000	-4.148	3.959	63.640	74.216	-3.320	-4.108	-38.184	-50.883	30.512	2.934
21	8.677	39.383	-61.883	43.278	20.984	1.473	32.615	20.628	5.441	4.867	-32.615	37.886	-39.699	-2.433
22	-149.832	-33.050	116.848	116.782	86.415	-7.367	46.739	52.256	38.856	34.754	-23.370	43.771	-74.142	-17.377
23	-113.600	-17.271	75.204	109.282	87.239	-0.031	17.802	-59.065	1.068	1.013	1.450	40.374	-62.511	-1.303
24	-58.835	6.442	62.621	62.056	45.277	-2.812	-7.203	-5.807	18.635	23.113	3.601	41.120	-49.075	-11.557
25	-58.972	53.569	4.948	-26.667	12.542	11.043	48.074	7.211	-17.139	-9.581	-52.881	-13.533	19.190	9.581
26	-60.387	12.349	37.354	72.736	57.435	34.851	-17.464	-24.698	21.640	-36.168	17.464	39.104	-17.464	19.060
27	-72.238	28.894	3.672	0.000	-12.468	-14.449	-3.672	-3.744	-64.610	-64.610	0.734	23.413	13.810	-0.000
28	-91.320	-1.705	80.355	90.751	74.615	6.128	1.797	1.078	15.884	26.473	-1.438	35.066	-41.063	-21.179

S-6 файл 6s22WC