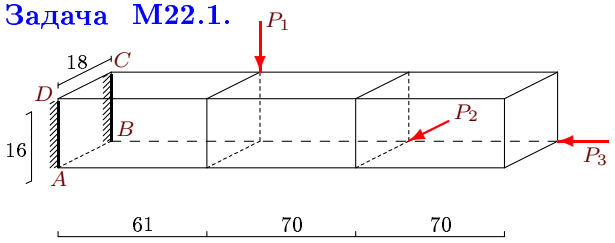
Сложное сопротивление призматического стержня

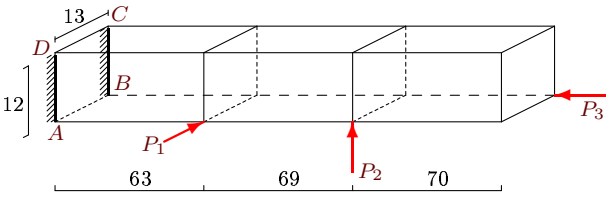
На консольно закрепленный брус действуют три силы, параллельные его ребрам. Найти нормальные напряжения в точках A, B, C и D заделки бруса и угол осевого поворота концевого сечения бруса. Размеры даны в сантиметрах. Модуль сдвига $G = 0.8 \cdot 10^5$ МПа.

Задача М22.1. 2



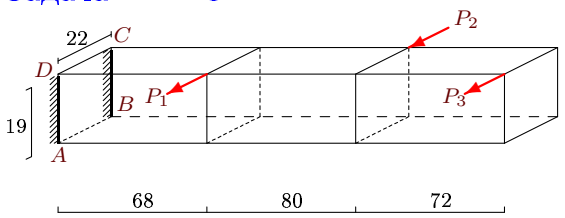
$P_1 = 30$кН, $P_2 = 30$кН, $P_3 = 25$кН.

Задача М22.2. 2



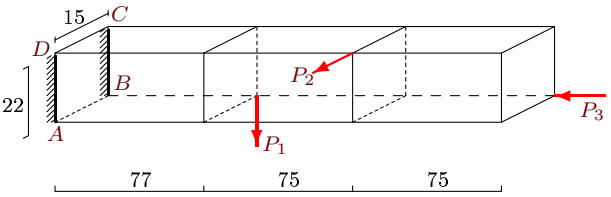
$P_1 = 30$кН, $P_2 = 30$кН, $P_3 = 35$кН.

Задача М22.3. 2



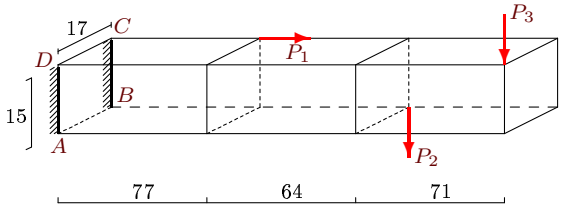
$P_1 = 40$кН, $P_2 = 30$кН, $P_3 = 35$кН.

Задача М22.4. 2



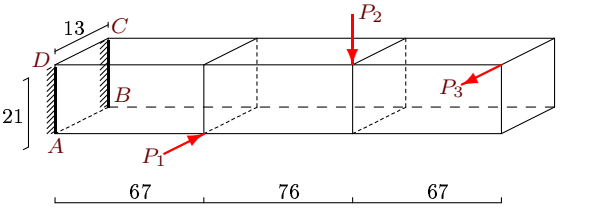
$P_1 = 35$кН, $P_2 = 35$кН, $P_3 = 35$кН.

Задача М22.5. 2



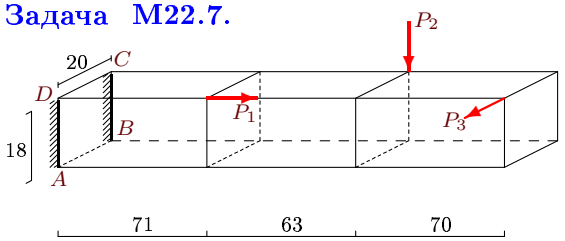
$P_1 = 25$кН, $P_2 = 30$кН, $P_3 = 40$кН.

Задача М22.6. 2



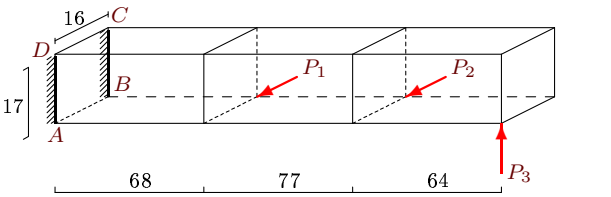
$P_1 = 35$кН, $P_2 = 25$кН, $P_3 = 25$кН.

Задача М22.7. 2



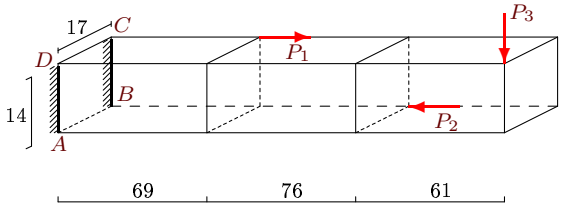
$P_1 = 25$кН, $P_2 = 30$кН, $P_3 = 30$кН.

Задача М22.8. 2



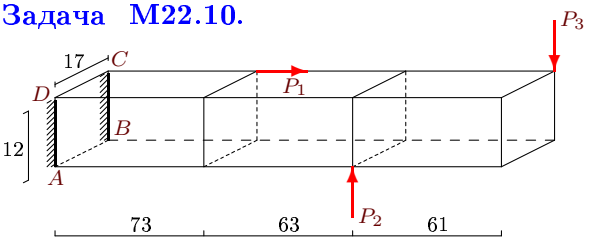
$P_1 = 35$кН, $P_2 = 25$кН, $P_3 = 20$кН.

Задача М22.9. 2



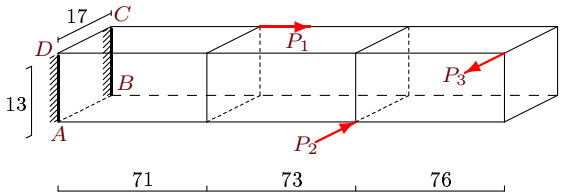
$P_1 = 35$кН, $P_2 = 20$кН, $P_3 = 30$кН.

Задача М22.10. 2



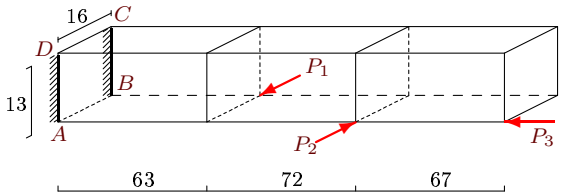
$P_1 = 25$кН, $P_2 = 20$кН, $P_3 = 25$кН.

Задача М22.11.



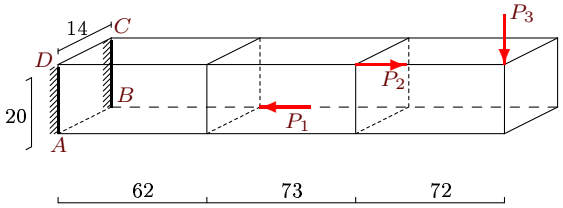
$P_1 = 35$кН, $P_2 = 35$кН, $P_3 = 25$кН.

Задача М22.12.



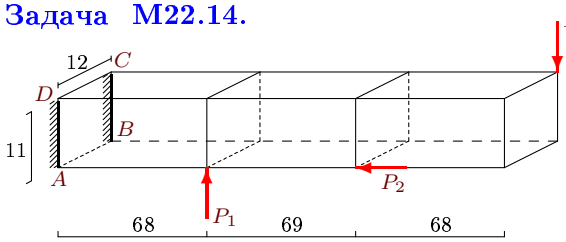
$P_1 = 30$кН, $P_2 = 25$кН, $P_3 = 25$кН.

Задача М22.13.



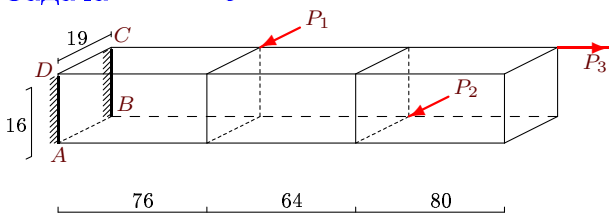
$P_1 = 35$кН, $P_2 = 30$кН, $P_3 = 40$кН.

Задача М22.14.



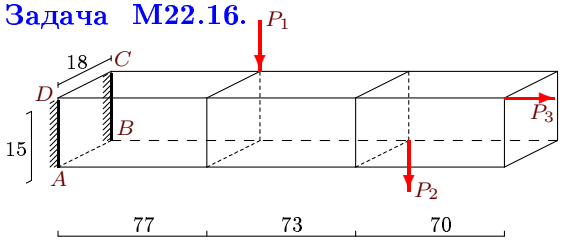
$P_1 = 30$кН, $P_2 = 30$кН, $P_3 = 40$кН.

Задача М22.15.



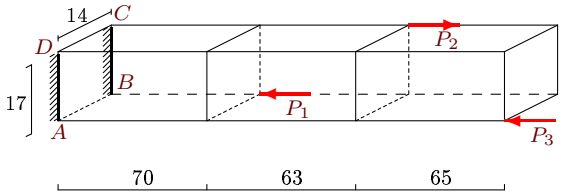
$P_1 = 25$кН, $P_2 = 40$кН, $P_3 = 25$кН.

Задача М22.16.



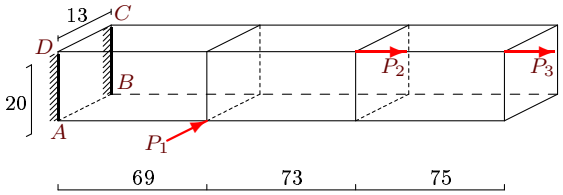
$P_1 = 35$кН, $P_2 = 30$кН, $P_3 = 40$кН.

Задача М22.17.



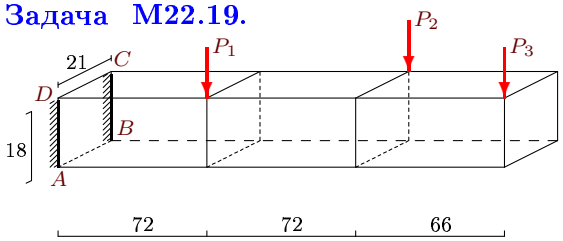
$P_1 = 25$кН, $P_2 = 25$кН, $P_3 = 30$кН.

Задача М22.18.



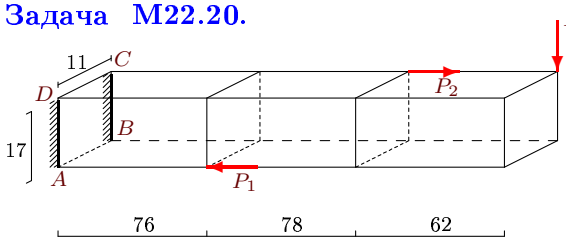
$P_1 = 35$кН, $P_2 = 35$кН, $P_3 = 20$кН.

Задача М22.19.



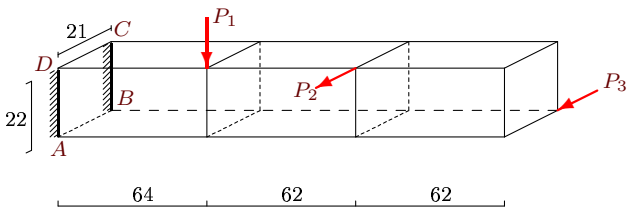
$P_1 = 30$кН, $P_2 = 25$кН, $P_3 = 35$кН.

Задача М22.20.



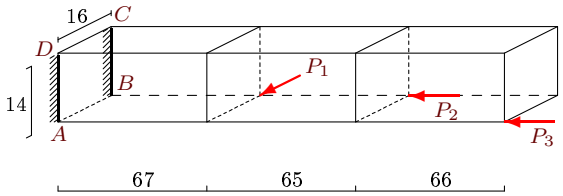
$P_1 = 40$кН, $P_2 = 20$кН, $P_3 = 40$кН.

Задача М22.21.



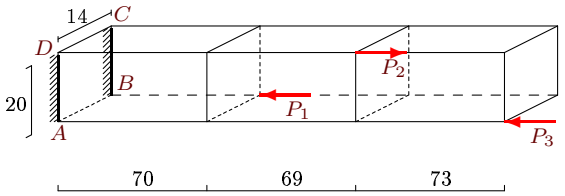
$P_1 = 20$кН, $P_2 = 20$кН, $P_3 = 35$кН.

Задача М22.22.



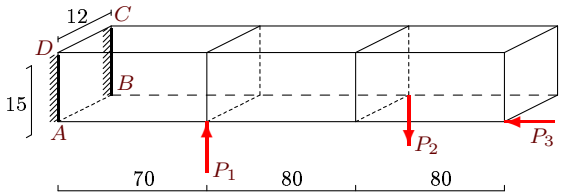
$P_1 = 25$кН, $P_2 = 25$кН, $P_3 = 20$кН.

Задача М22.23.



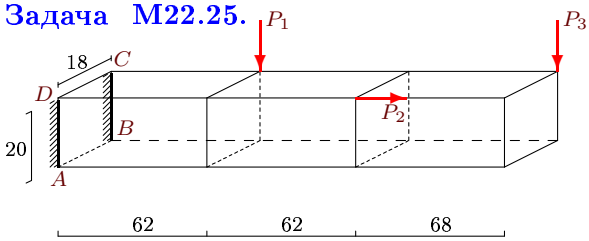
$P_1 = 30$кН, $P_2 = 35$кН, $P_3 = 25$кН.

Задача М22.24.



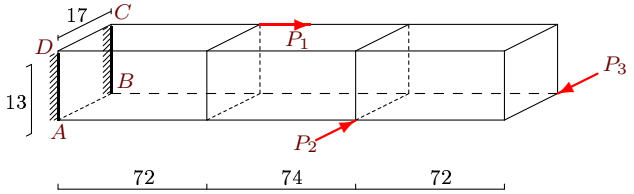
$P_1 = 40$кН, $P_2 = 40$кН, $P_3 = 30$кН.

Задача М22.25.



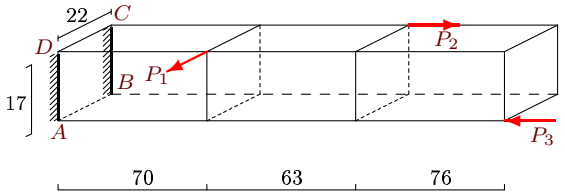
$P_1 = 20$кН, $P_2 = 30$кН, $P_3 = 20$кН.

Задача М22.26.



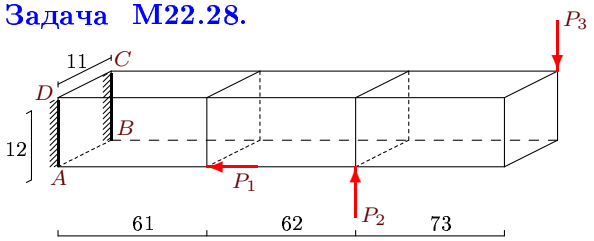
$P_1 = 35$кН, $P_2 = 30$кН, $P_3 = 35$кН.

Задача М22.27.



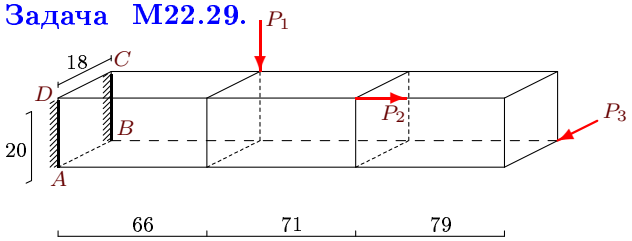
$P_1 = 25$кН, $P_2 = 35$кН, $P_3 = 20$кН.

Задача М22.28.



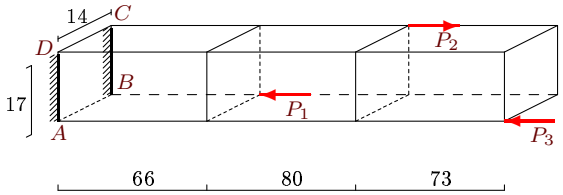
$P_1 = 20$кН, $P_2 = 35$кН, $P_3 = 35$кН.

Задача М22.29.



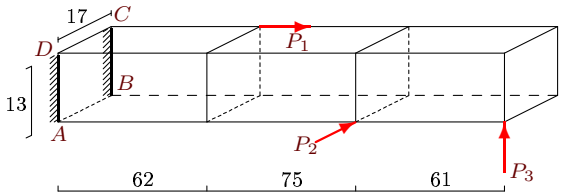
$P_1 = 30$кН, $P_2 = 40$кН, $P_3 = 35$кН.

Задача М22.30.



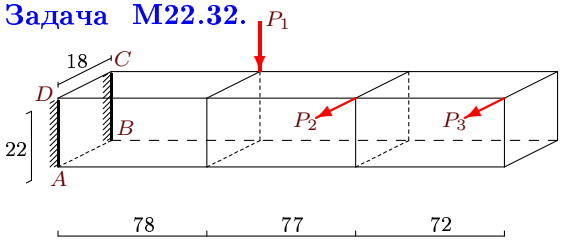
$P_1 = 40$кН, $P_2 = 35$кН, $P_3 = 35$кН.

Задача М22.31. 2



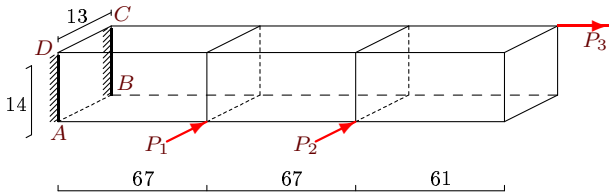
$P_1 = 35$кН, $P_2 = 20$кН, $P_3 = 25$кН.

Задача М22.32. 2



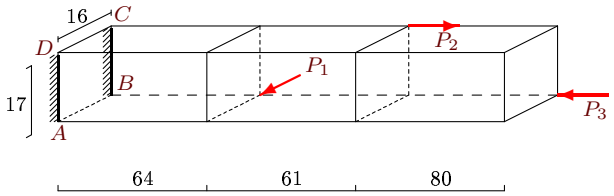
$P_1 = 35$кН, $P_2 = 30$кН, $P_3 = 30$кН.

Задача М22.33. 2



$P_1 = 25$кН, $P_2 = 20$кН, $P_3 = 40$кН.

Задача М22.34. 2



$P_1 = 20$кН, $P_2 = 40$кН, $P_3 = 35$кН.

Ответы.

Сложное сопротивление призматического стержня 08.12.2014

№	J_x	J_z	J_k	φ	σ_A	σ_B	σ_C	σ_D
	см^4			рад $\cdot 10^3$	МПа			
1	6144.0	7776.0	11409.4	-0.164	-70.182	15.582	68.446	-17.318
2	1872.0	2197.0	3373.3	1.374	180.597	55.301	-185.084	-59.788
3	12574.8	16859.3	23897.5	0.027	-96.955	96.955	96.955	-96.955
4	13310.0	6187.5	14280.8	-0.335	-87.818	34.788	85.697	-36.909
5	4781.3	6141.3	8931.4	-1.512	-204.275	-198.392	206.235	200.353
6	10032.8	3844.8	9394.2	0.752	-86.527	11.697	86.527	-11.697
7	9720.0	12000.0	17871.8	0.104	-87.528	10.306	88.917	-8.917
8	6550.7	5802.7	10296.8	-0.214	-28.551	137.028	28.551	-137.028
9	3887.3	5731.8	7676.9	-0.855	-119.478	-115.696	120.738	116.957
10	2448.0	4913.0	5488.4	-0.427	-60.172	-52.819	62.623	55.270
11	3112.4	5322.4	6530.3	1.311	-15.265	8.930	18.432	-5.763
12	2929.3	4437.3	5848.8	0.206	18.359	-27.975	-20.763	25.571
13	9333.3	4573.3	10325.3	-0.702	-88.893	-102.821	88.536	102.464
14	1331.0	1584.0	2411.8	-3.184	-270.455	-256.818	265.909	252.273
15	6485.3	9145.3	12578.3	-0.596	-82.020	78.731	83.665	-77.086
16	5062.5	7290.0	9902.3	-0.205	-105.111	-114.000	108.074	116.963
17	5731.8	3887.3	7676.9	0.000	-15.126	-7.563	12.605	5.042
18	8666.7	3661.7	8723.8	0.346	44.985	-53.447	-40.754	57.678
19	10206.0	13891.5	19513.9	-0.591	-115.608	-115.608	115.608	115.608
20	4503.6	1885.6	4502.8	-1.319	-183.391	-164.140	181.252	162.001
21	18634.0	16978.5	29794.8	0.244	-63.833	48.721	63.833	-48.721
22	3658.7	4778.7	6880.4	-0.213	-35.407	19.336	31.390	-23.354
23	9333.3	4573.3	10325.3	0.000	-6.071	-14.643	4.643	13.214
24	3375.0	2160.0	4367.5	-1.511	-82.778	-72.778	79.444	69.444
25	12000.0	9720.0	17871.8	-0.164	-41.500	-46.500	43.167	48.167
26	3112.4	5322.4	6530.3	1.494	-59.822	53.487	62.989	-50.319
27	9007.2	15084.7	18737.0	-0.099	-21.184	13.162	21.986	-12.360
28	1584.0	1331.0	2411.8	-0.728	-107.386	-98.295	104.356	95.265
29	12000.0	9720.0	17871.8	0.653	-85.389	47.944	87.611	-45.722
30	5731.8	3887.3	7676.9	0.000	-19.328	-11.765	15.966	8.403
31	3112.4	5322.4	6530.3	1.146	139.216	61.202	-136.049	-58.034
32	15972.0	10692.0	21227.2	0.285	-115.266	77.663	115.266	-77.663
33	2972.7	2563.2	4597.1	0.829	99.451	-108.242	-95.055	112.637
34	6550.7	5802.7	10296.8	-0.132	-26.287	10.110	26.654	-9.743

M22 файл o22m2A