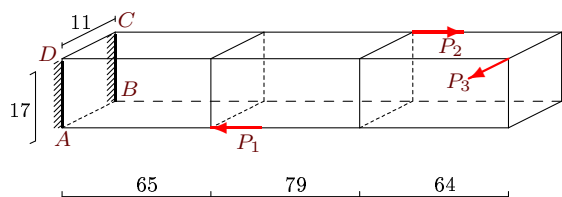


## Сложное сопротивление призматического стержня

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 конечного сечения бруса. Размеры даны в сантиметрах. Модуль сдвига  $G = 0.8 \cdot 10^5$  МПа.

**Задача M22.1.**

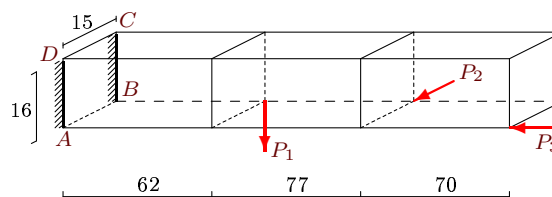
4



$$P_1 = 40 \text{ кН}, P_2 = 25 \text{ кН}, P_3 = 20 \text{ кН}.$$

**Задача M22.2.**

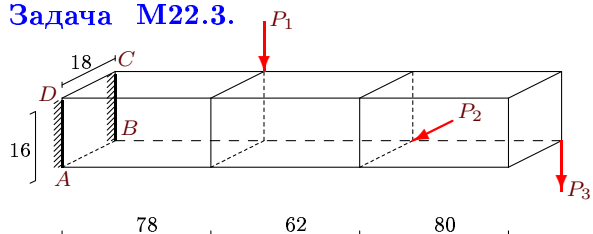
4



$$P_1 = 35 \text{ кН}, P_2 = 30 \text{ кН}, P_3 = 25 \text{ кН}.$$

**Задача M22.3.**

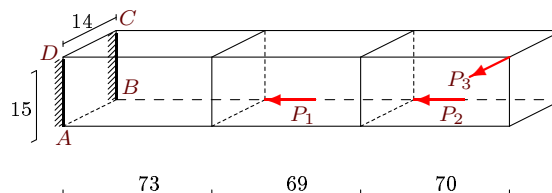
4



$$P_1 = 20 \text{ кН}, P_2 = 40 \text{ кН}, P_3 = 25 \text{ кН}.$$

**Задача M22.4.**

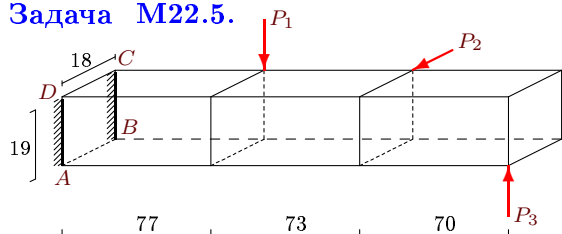
4



$$P_1 = 30 \text{ кН}, P_2 = 30 \text{ кН}, P_3 = 40 \text{ кН}.$$

**Задача M22.5.**

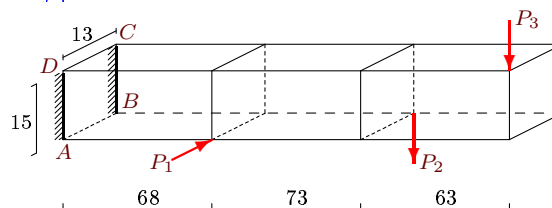
4



$$P_1 = 35 \text{ кН}, P_2 = 30 \text{ кН}, P_3 = 30 \text{ кН}.$$

**Задача M22.6.**

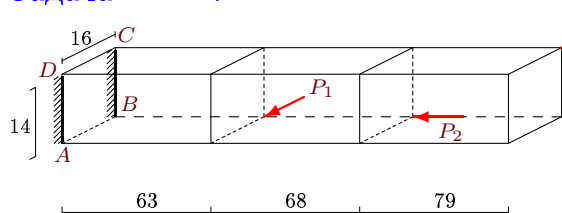
4



$$P_1 = 35 \text{ кН}, P_2 = 25 \text{ кН}, P_3 = 20 \text{ кН}.$$

**Задача M22.7.**

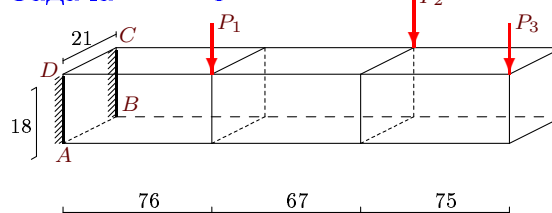
4



$$P_1 = 30 \text{ кН}, P_2 = 40 \text{ кН}, P_3 = 25 \text{ кН}.$$

**Задача M22.8.**

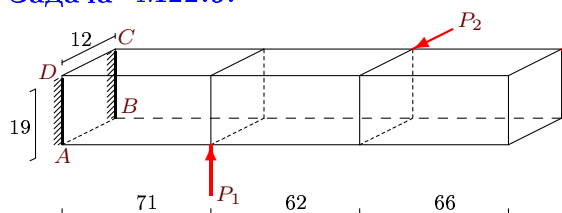
4



$$P_1 = 25 \text{ кН}, P_2 = 35 \text{ кН}, P_3 = 25 \text{ кН}.$$

**Задача M22.9.**

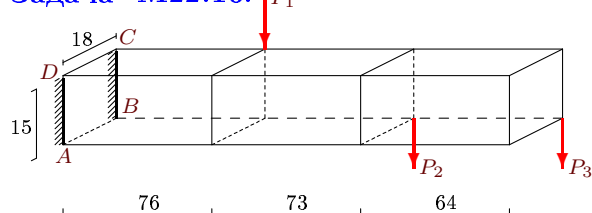
4



$$P_1 = 20 \text{ кН}, P_2 = 25 \text{ кН}, P_3 = 30 \text{ кН}.$$

**Задача M22.10.**

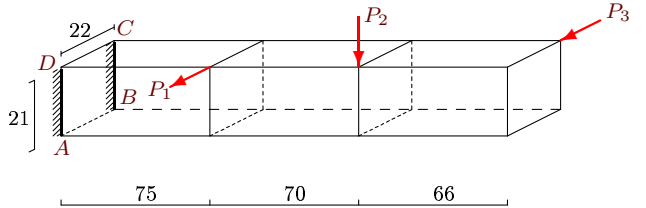
4



$$P_1 = 35 \text{ кН}, P_2 = 25 \text{ кН}, P_3 = 30 \text{ кН}.$$

**Задача M22.11.**

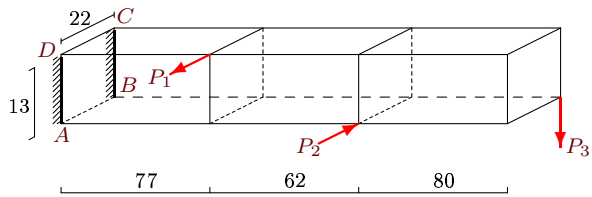
4



$P_1 = 30\text{кН}, P_2 = 25\text{кН}, P_3 = 20\text{кН}.$

**Задача M22.13.**

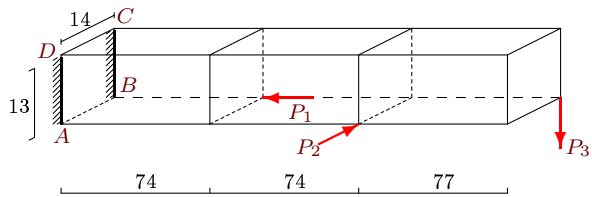
4



$P_1 = 20\text{кН}, P_2 = 40\text{кН}, P_3 = 30\text{кН}.$

**Задача M22.15.**

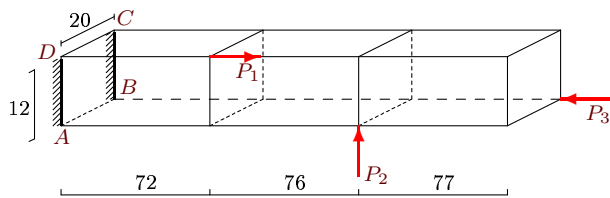
4



$P_1 = 35\text{кН}, P_2 = 35\text{кН}, P_3 = 40\text{кН}.$

**Задача M22.17.**

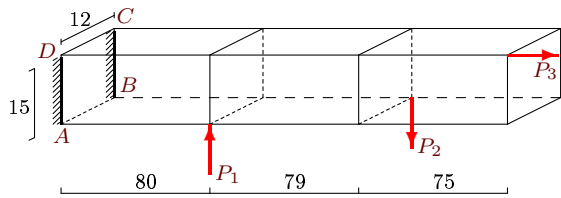
4



$P_1 = 35\text{кН}, P_2 = 35\text{кН}, P_3 = 35\text{кН}.$

**Задача M22.19.**

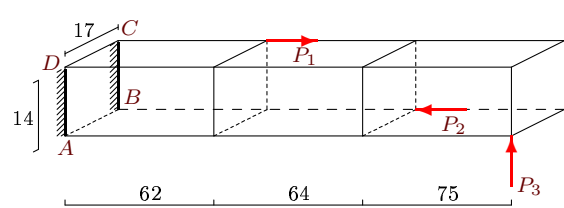
4



$P_1 = 40\text{кН}, P_2 = 35\text{кН}, P_3 = 40\text{кН}.$

**Задача M22.12.**

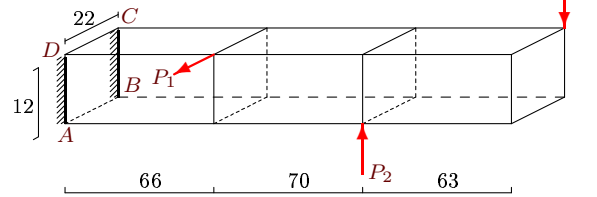
4



$P_1 = 25\text{кН}, P_2 = 35\text{кН}, P_3 = 35\text{кН}.$

**Задача M22.14.**

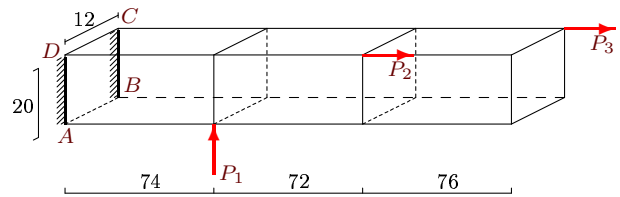
4



$P_1 = 30\text{кН}, P_2 = 25\text{кН}, P_3 = 25\text{кН}.$

**Задача M22.16.**

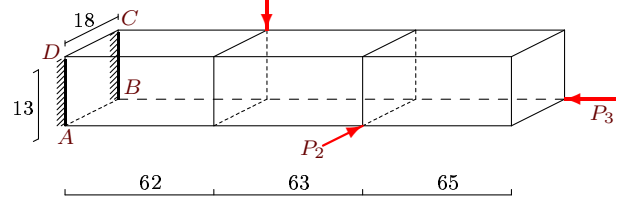
4



$P_1 = 30\text{кН}, P_2 = 35\text{кН}, P_3 = 35\text{кН}.$

**Задача M22.18.**

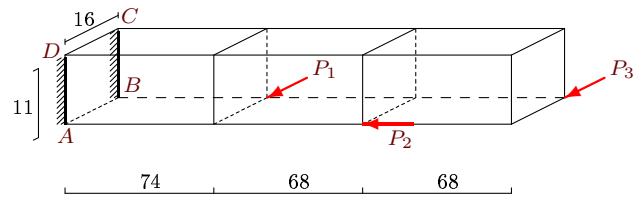
4



$P_1 = 25\text{кН}, P_2 = 25\text{кН}, P_3 = 25\text{кН}.$

**Задача M22.20.**

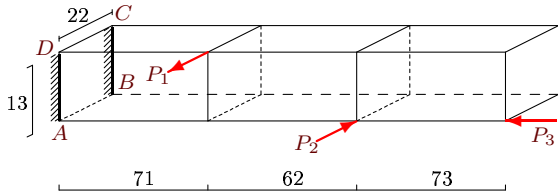
4



$P_1 = 30\text{кН}, P_2 = 30\text{кН}, P_3 = 40\text{кН}.$

Задача M22.21.

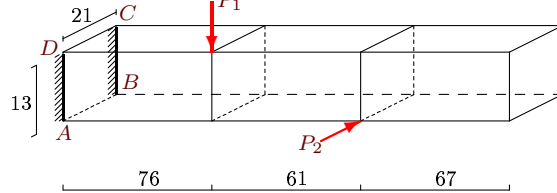
4



$P_1 = 20\text{кН}, P_2 = 35\text{кН}, P_3 = 25\text{кН}.$

Задача M22.22.

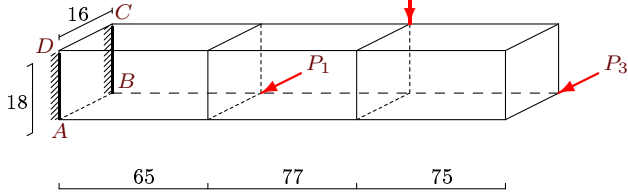
4



$P_1 = 20\text{кН}, P_2 = 25\text{кН}, P_3 = 35\text{кН}.$

Задача M22.23.

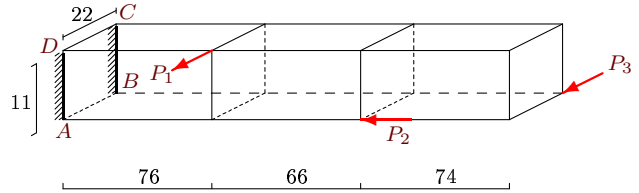
4



$P_1 = 35\text{кН}, P_2 = 35\text{кН}, P_3 = 25\text{кН}.$

Задача M22.24.

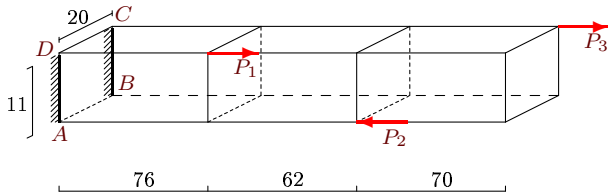
4



$P_1 = 25\text{кН}, P_2 = 35\text{кН}, P_3 = 25\text{кН}.$

Задача M22.25.

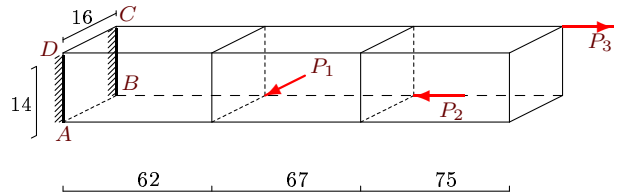
4



$P_1 = 20\text{кН}, P_2 = 30\text{кН}, P_3 = 35\text{кН}.$

Задача M22.26.

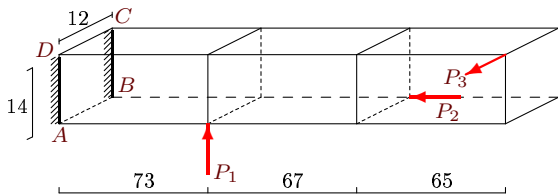
4



$P_1 = 25\text{кН}, P_2 = 35\text{кН}, P_3 = 30\text{кН}.$

Задача M22.27.

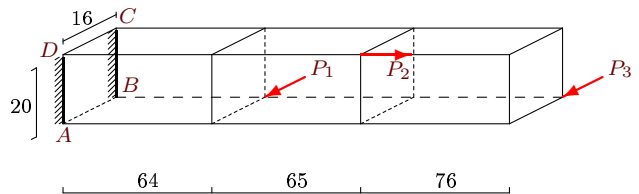
4



$P_1 = 25\text{кН}, P_2 = 25\text{кН}, P_3 = 30\text{кН}.$

Задача M22.28.

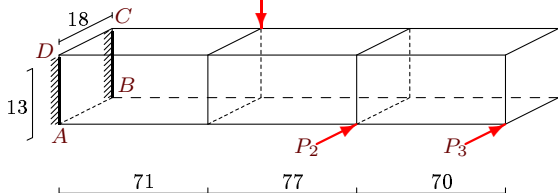
4



$P_1 = 25\text{кН}, P_2 = 35\text{кН}, P_3 = 35\text{кН}.$

Задача M22.29.

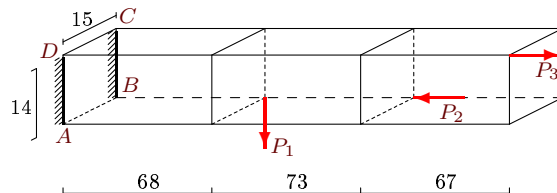
4



$P_1 = 35\text{кН}, P_2 = 30\text{кН}, P_3 = 25\text{кН}.$

Задача M22.30.

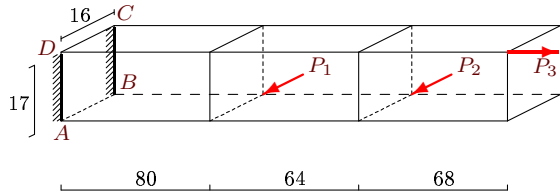
4



$P_1 = 35\text{кН}, P_2 = 25\text{кН}, P_3 = 25\text{кН}.$

Задача М22.31.

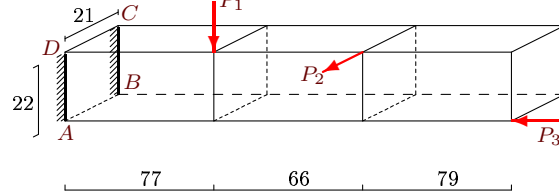
4



$$P_1 = 25 \text{ кН}, P_2 = 30 \text{ кН}, P_3 = 25 \text{ кН}.$$

Задача М22.32.

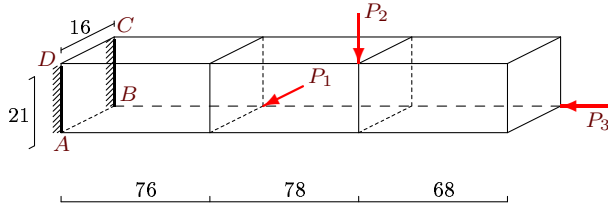
4



$$P_1 = 25 \text{ кН}, P_2 = 40 \text{ кН}, P_3 = 30 \text{ кН}.$$

Задача М22.33.

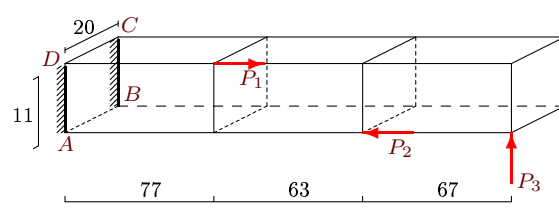
4



$$P_1 = 40 \text{ кН}, P_2 = 30 \text{ кН}, P_3 = 30 \text{ кН}.$$

Задача М22.34.

4



$$P_1 = 25 \text{ кН}, P_2 = 25 \text{ кН}, P_3 = 30 \text{ кН}.$$

М22

Ответы.

Сложное сопротивление призматического стержня 08.12.2014

№	$J_x$	$J_z$	$J_k$	$\varphi$	$\sigma_A$	$\sigma_B$	$\sigma_C$	$\sigma_D$
	см <sup>4</sup>			рад · 10 <sup>3</sup>	МПа			
1	4503.6	1885.6	4502.8	0.982	-143.000	120.540	141.395	-122.144
2	5120.0	4500.0	8010.0	-0.267	-110.698	34.552	108.615	-36.635
3	6144.0	7776.0	11409.4	-0.879	-156.742	-27.112	156.742	27.112
4	3937.5	3430.0	6127.0	1.298	-175.918	153.061	170.204	-158.776
5	10288.5	9234.0	16301.1	0.314	-7.802	79.917	7.802	-79.917
6	3656.3	2746.3	5204.4	-0.759	-99.669	-212.331	99.669	212.331
7	3658.7	4778.7	6880.4	0.427	-121.317	107.031	117.746	-110.603
8	10206.0	13891.5	19513.9	-0.575	-108.951	-108.951	108.951	108.951
9	6859.0	2736.0	6615.6	-0.758	-59.828	93.900	62.460	-91.268
10	5062.5	7290.0	9902.3	-0.847	-189.259	-189.259	189.259	189.259
11	16978.5	18634.0	29794.8	-0.081	-60.612	15.776	60.612	-15.776
12	3887.3	5731.8	7676.9	0.974	119.958	117.437	-120.798	-118.277
13	4027.8	11535.3	10086.9	-0.572	-67.690	-144.359	67.690	144.359
14	3168.0	10648.0	8287.5	-0.440	-50.284	-9.375	50.284	9.375
15	2563.2	2972.7	4597.1	-0.798	-108.178	-363.673	104.332	359.827
16	8000.0	2880.0	7153.9	-0.233	21.917	21.917	-16.083	-16.083
17	2880.0	8000.0	7153.9	0.905	107.917	90.417	-107.917	-90.417
18	3295.5	6318.0	7249.1	0.591	12.875	-82.566	-15.012	80.430
19	3375.0	2160.0	4367.5	-1.505	-50.333	-63.667	54.778	68.111
20	1774.7	3754.7	4067.5	1.045	-238.210	224.574	234.801	-227.983
21	4027.8	11535.3	10086.9	0.261	24.730	-31.723	-26.478	29.975
22	3844.8	10032.8	9394.2	1.126	-64.578	13.183	64.578	-13.183
23	7776.0	6144.0	11409.4	-0.125	-157.784	42.737	157.784	-42.737
24	2440.2	9760.7	6705.6	0.359	-92.393	80.823	89.500	-83.715
25	2218.3	7333.3	5776.5	0.000	-16.591	-4.318	18.864	6.591
26	3658.7	4778.7	6880.4	-0.197	-34.208	16.350	33.761	-16.797
27	2744.0	2016.0	3854.6	1.041	-137.968	219.175	134.991	-222.151
28	10666.7	6826.7	13803.5	0.505	-101.738	97.363	103.926	-95.176
29	3295.5	6318.0	7249.1	0.272	91.869	-189.897	-91.869	189.897
30	3430.0	3937.5	6127.0	0.364	-48.571	-62.857	48.571	62.857
31	6550.7	5802.7	10296.8	-0.652	-86.213	82.537	88.051	-80.699
32	18634.0	16978.5	29794.8	-0.179	-51.283	23.361	49.985	-24.660
33	12348.0	7168.0	15085.1	-0.571	-74.107	-11.607	72.321	9.821
34	2218.3	7333.3	5776.5	1.344	147.149	147.149	-147.149	-147.149

М22 файл о22м4А