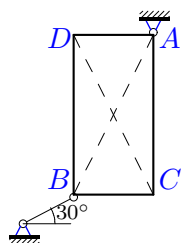


Теорема о трех силах

Тело находится в равновесии под действием трех сил, одна из которых известный вес тела G или внешняя нагрузка P , другая — реакция опоры в точке B (гладкая опора или опорный стержень) с известным направлением, а третья — реакция неподвижного шарнира A . Используя теорему о трех силах, найти неизвестные реакции опор (в кН). Размеры указаны в см.

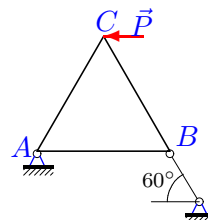
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.— М.:ФИЗМАТЛИТ, 2008.— 384 с. (с.26.)

Задача 3.1.



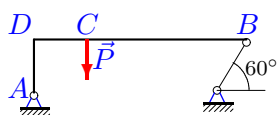
$$G = 24 \text{ кН}, AC = 2BC$$

Задача 3.2.



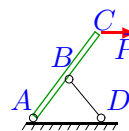
$$P = 8 \text{ кН}, AB = BC = CA$$

Задача 3.3.



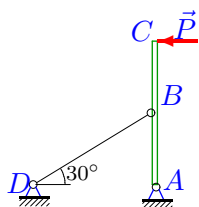
$$P = 29 \text{ кН}, AD = DC, BD = 4AD.$$

Задача 3.4.



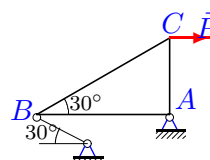
$$P = 10 \text{ кН}, AB = BD = CB, AD = 24 \text{ см}, CD = 32 \text{ см}.$$

Задача 3.5.



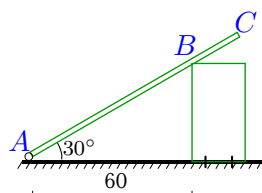
$$P = 6 \text{ кН}, AB = BC$$

Задача 3.6.



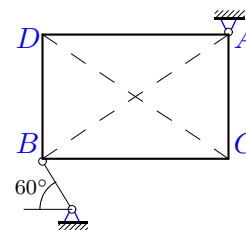
$$P = 11 \text{ кН}$$

Задача 3.7.



$$G = 28 \text{ кН}, AC = 90 \text{ см}$$

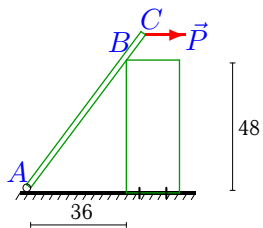
Задача 3.8.



$$G = 5 \text{ кН}, 3AC = 2BC$$

Задача 3.9.

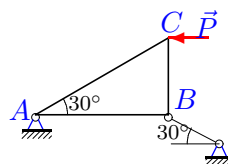
6



$P = 28 \text{ кН}, AC = 72 \text{ см}$

Задача 3.10.

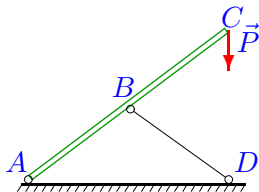
6



$P = 28 \text{ кН}$

Задача 3.11.

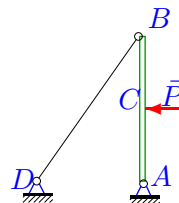
6



$P = 29 \text{ кН}, AB = BD = CB,$
 $AD = 74 \text{ см}, CD = 56 \text{ см}.$

Задача 3.12.

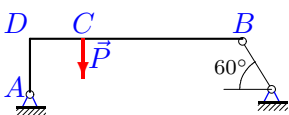
6



$P = 30 \text{ кН}, 3AB = 4AD, AC = BC$

Задача 3.13.

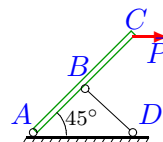
6



$P = 4 \text{ кН}, AD = DC, BD = 4AD.$

Задача 3.14.

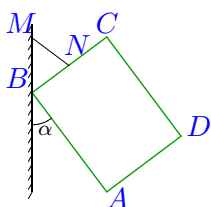
6



$P = 29 \text{ кН}, AB = BD = CB$

Задача 3.15.

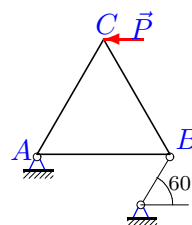
6



$G = 23 \text{ кН}, BN = 17.5 \text{ см},$
 $NC = 17.5 \text{ см}, 4AD = 3DC, \sin \alpha = 0.6$

Задача 3.16.

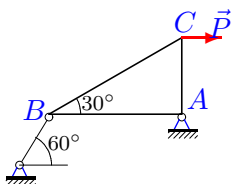
6



$P = 3 \text{ кН}, AB = BC = CA$

Задача 3.17.

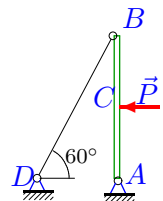
6



$P = 32 \text{ кН}$

Задача 3.18.

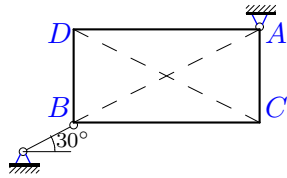
6



$P = 15 \text{ кН}, AC = BC$

Задача 3.19.

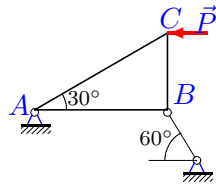
6



$G = 7 \text{ кН}, 2AC = BC$

Задача 3.21.

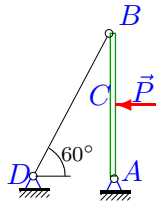
6



$P = 27 \text{ кН}$

Задача 3.23.

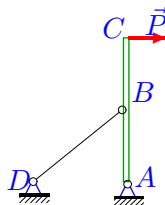
6



$P = 7 \text{ кН}, AC = BC$

Задача 3.25.

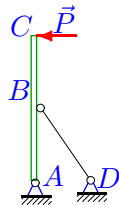
6



$P = 30 \text{ кН}, 4AB = 3AD, AB = BC$

Задача 3.27.

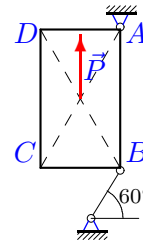
6



$P = 12 \text{ кН}, 3AB = 4AD, AB = BC$

Задача 3.20.

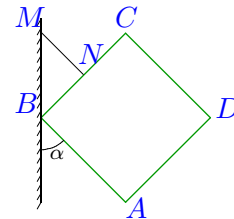
6



$P = 26 \text{ кН}, AB = \sqrt{3}BC$

Задача 3.22.

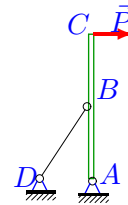
6



$G = 17 \text{ кН}, BN = 22.5 \text{ см}, NC = 22.5 \text{ см}, AD = DC, \alpha = 45^\circ$

Задача 3.24.

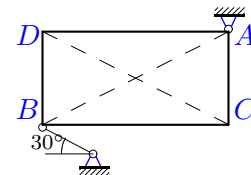
6



$P = 32 \text{ кН}, 3AB = 4AD, AB = BC$

Задача 3.26.

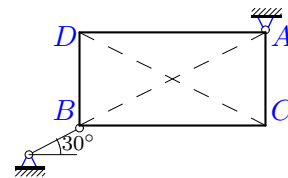
6



$G = 8 \text{ кН}, 2AC = BC$

Задача 3.28.

6



$G = 1 \text{ кН}, 2AC = BC$

Задача 3.29.

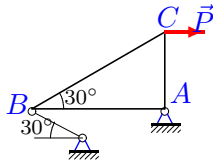
6



$G = 18 \text{ кН}$,

Задача 3.31.

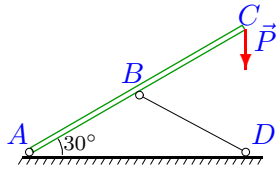
6



$P = 26 \text{ кН}$

Задача 3.33.

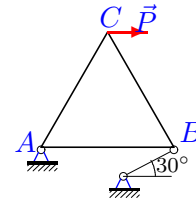
6



$P = 6 \text{ кН}, AB=BD=CB$

Задача 3.30.

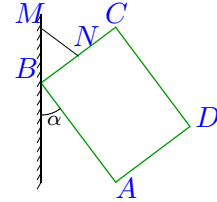
6



$P = 8 \text{ кН}, AB=BC=CA$

Задача 3.32.

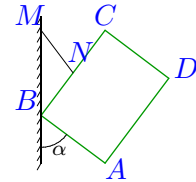
6



$G = 8 \text{ кН}, BN=17.5 \text{ см}, NC=17.5 \text{ см},$
 $4AD=3DC, \sin \alpha=0.6$

Задача 3.34.

6



$G = 27 \text{ кН}, BN=20 \text{ см}, NC=20 \text{ см},$
 $3AD=4DC, \sin \alpha=0.8$

Теорема о трех силах

	R_A	R_B
1	9.740	30.077
2	8.000	8.000
3	-9.784	21.102
4	-16.667	13.333
5	-13.856	9.165
6	12.702	22.898
7	-15.709	16.399
8	-2.084	3.361
9	-26.880	17.387
10	32.332	16.166
11	-48.117	38.493
12	-25.000	25.000
13	-1.009	3.167
14	-41.012	29.000
15	-38.333	30.667
16	3.000	5.196
17	21.333	28.221
18	-15.000	15.000
19	-52.249	49.124
20	-15.011	39.716
21	18.000	23.812
22	-24.042	17.000
23	-7.000	7.000
24	106.667	91.136
25	75.000	54.083
26	-4.287	6.934
27	40.000	34.176
28	-7.464	7.018
29	-12.728	12.728
30	-13.856	21.166
31	30.022	54.123
32	-13.333	10.667
33	-12.024	10.414
34	-33.750	20.250