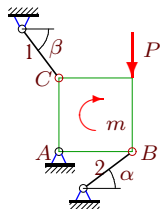


Статически неопределимая стержневая система (1)

Шарнирно закрепленная пластина удерживается в равновесии двумя стержнями одинаковой жесткости. Длины стержней l_1 и l_2 . На пластину действует момент m и вертикальная сила P . Найти усилия в стержнях.

Задача 23.1.

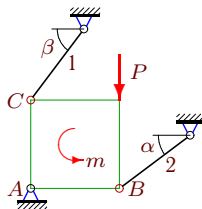
2



$P = 80 \text{ Н}$, $m = 708 \text{ Нм}$, $AB = 6 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.2.

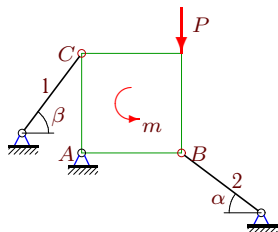
2



$P = 180 \text{ Н}$, $m = 75 \text{ Нм}$, $AB = 5 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.3.

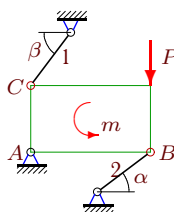
2



$P = 280 \text{ Н}$, $m = 650 \text{ Нм}$, $AB = 5 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_1 = l_2$.

Задача 23.4.

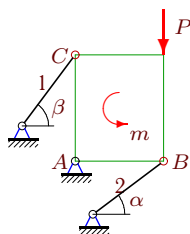
2



$P = 300 \text{ Н}$, $m = 867 \text{ Нм}$, $AB = 9 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.5.

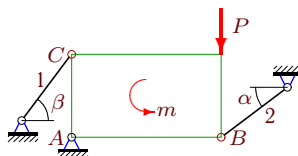
2



$P = 190 \text{ Н}$, $m = 110 \text{ Нм}$, $AB = 5 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (4/5)l_1$.

Задача 23.6.

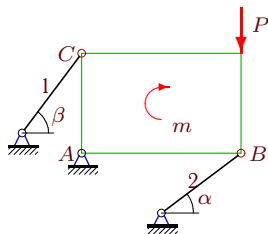
2



$P = 200 \text{ Н}$, $m = 210 \text{ Нм}$, $AB = 9 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_1 = l_2$.

Задача 23.7.

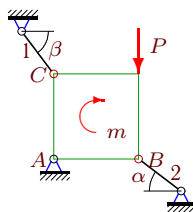
2



$P = 60 \text{ Н}$, $m = 279 \text{ Нм}$, $AB = 8 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (2/5)l_1$.

Задача 23.8.

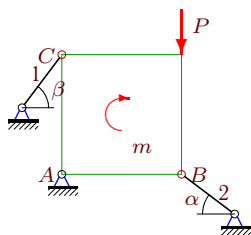
2



$P = 130 \text{ Н}$, $m = 1072 \text{ Нм}$, $AB = 8 \text{ м}$,
 $AC = 8 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.9.

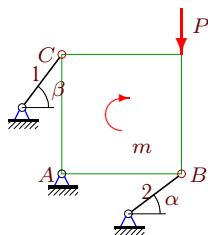
2



$P = 140 \text{ Н}, m = 1170 \text{ Нм}, AB = 9 \text{ м}, AC = 9 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_1 = l_2.$

Задача 23.11.

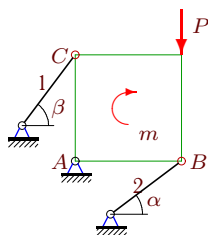
2



$P = 110 \text{ Н}, m = 1197 \text{ Нм}, AB = 9 \text{ м}, AC = 9 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (4/5)l_1.$

Задача 23.13.

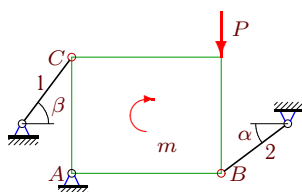
2



$P = 140 \text{ Н}, m = 24 \text{ Нм}, AB = 6 \text{ м}, AC = 6 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (3/5)l_1.$

Задача 23.15.

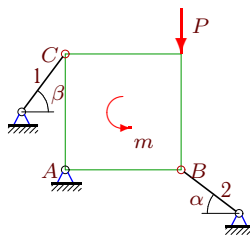
2



$P = 90 \text{ Н}, m = 1140 \text{ Нм}, AB = 9 \text{ м}, AC = 7 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_1 = l_2.$

Задача 23.10.

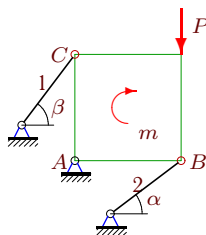
2



$P = 300 \text{ Н}, m = 864 \text{ Нм}, AB = 8 \text{ м}, AC = 8 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (3/5)l_1.$

Задача 23.12.

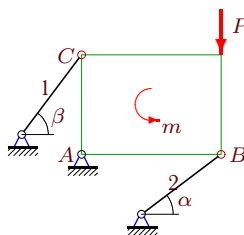
2



$P = 140 \text{ Н}, m = 348 \text{ Нм}, AB = 6 \text{ м}, AC = 6 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (6/5)l_1.$

Задача 23.14.

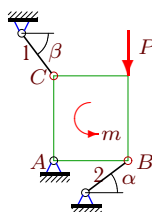
2



$P = 300 \text{ Н}, m = 843 \text{ Нм}, AB = 7 \text{ м}, AC = 5 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (6/5)l_1.$

Задача 23.16.

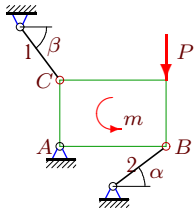
2



$P = 330 \text{ Н}, m = 1056 \text{ Нм}, AB = 7 \text{ м}, AC = 8 \text{ м}, \cos \alpha = \sin \beta = 0.8, l_2 = (2/5)l_1.$

Задача 23.17.

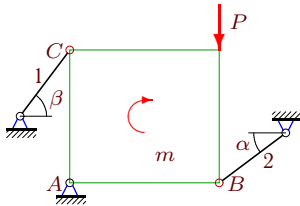
2



$P = 310 \text{ Н}$, $m = 953 \text{ Нм}$, $AB = 8 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.19.

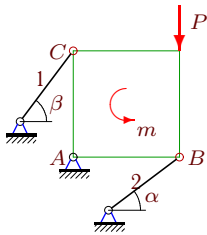
2



$P = 90 \text{ Н}$, $m = 879 \text{ Нм}$, $AB = 9 \text{ м}$,
 $AC = 8 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (3/5)l_1$.

Задача 23.21.

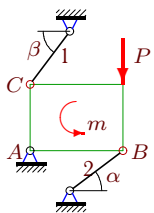
2



$P = 360 \text{ Н}$, $m = 1188 \text{ Нм}$, $AB = 6 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (4/5)l_1$.

Задача 23.23.

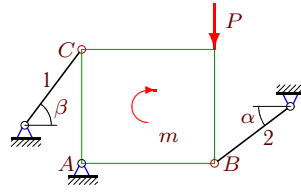
2



$P = 270 \text{ Н}$, $m = 927 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (4/5)l_1$.

Задача 23.18.

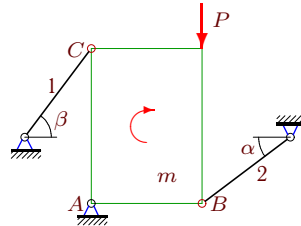
2



$P = 60 \text{ Н}$, $m = 414 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (2/5)l_1$.

Задача 23.20.

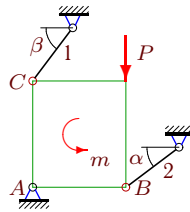
2



$P = 160 \text{ Н}$, $m = 310 \text{ Нм}$, $AB = 5 \text{ м}$,
 $AC = 7 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_1 = l_2$.

Задача 23.22.

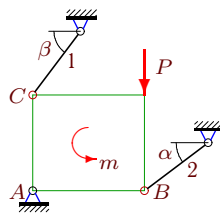
2



$P = 380 \text{ Н}$, $m = 1259 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 8 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (3/5)l_1$.

Задача 23.24.

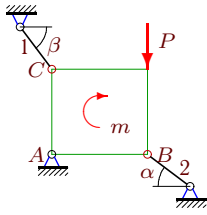
2



$P = 340 \text{ Н}$, $m = 958 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (6/5)l_1$.

Задача 23.25.

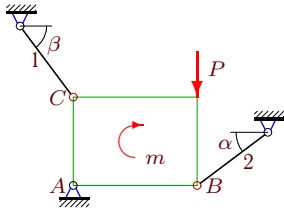
2



$P = 80 \text{ Н}$, $m = 726 \text{ Нм}$, $AB = 9 \text{ м}$,
 $AC = 8 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (2/5)l_1$.

Задача 23.27.

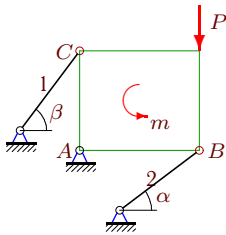
2



$P = 110 \text{ Н}$, $m = 340 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_1 = l_2$.

Задача 23.29.

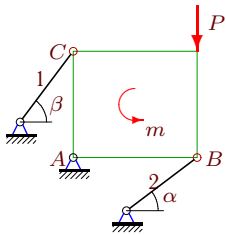
2



$P = 150 \text{ Н}$, $m = 93 \text{ Нм}$, $AB = 6 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (4/5)l_1$.

Задача 23.31.

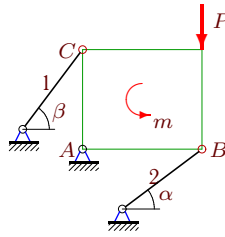
2



$P = 360 \text{ Н}$, $m = 1392 \text{ Нм}$, $AB = 7 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (4/5)l_1$.

Задача 23.26.

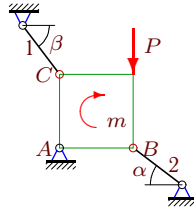
2



$P = 360 \text{ Н}$, $m = 1245 \text{ Нм}$, $AB = 6 \text{ м}$,
 $AC = 5 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_1 = l_2$.

Задача 23.28.

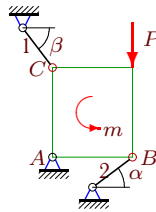
2



$P = 100 \text{ Н}$, $m = 264 \text{ Нм}$, $AB = 6 \text{ м}$,
 $AC = 6 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (3/5)l_1$.

Задача 23.30.

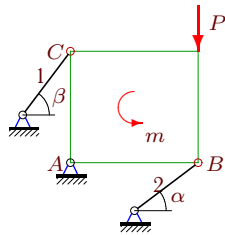
2



$P = 370 \text{ Н}$, $m = 1169 \text{ Нм}$, $AB = 8 \text{ м}$,
 $AC = 9 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (3/5)l_1$.

Задача 23.32.

2



$P = 230 \text{ Н}$, $m = 529 \text{ Нм}$, $AB = 8 \text{ м}$,
 $AC = 7 \text{ м}$, $\cos \alpha = \sin \beta = 0.8$, $l_2 = (3/5)l_1$.

Статически неопределимая стержневая система (1)

№	S_1	S_2
1	-180	150
2	150	-125
3	125	125
4	-270	-125
5	-100	150
6	225	125
7	-80	125
8	240	200
9	225	225
10	120	200
11	-180	225
12	-180	150
13	-90	150
14	-210	125
15	225	175
16	-70	200
17	-240	125
18	70	150
19	135	200
20	125	175
21	-120	150
22	105	-200
23	-140	-125
24	210	-150
25	90	200
26	-150	125
27	175	125
28	90	150
29	-120	125
30	-120	225
31	-140	150
32	-120	175