

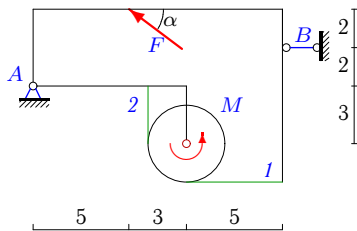
Составная конструкция из трех тел с нитью

Определить реакции опор конструкции (в кН) и натяжения частей нити. Нить огибает цилиндр весом G и соединяет части конструкции. Размеры даны в метрах. Конструкция расположена в вертикальной плоскости.

Кирсанов М.Н. Задачи по теоретической механике с решениями в **Maple** 11. – М.: ФИЗМАТЛИТ, 2010. – 264 с. (с.15)

Задача S-30.1.

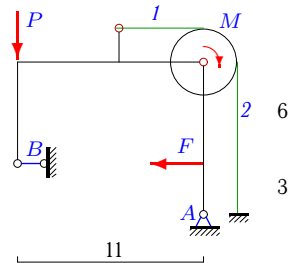
10



$G = 29$ кН, $F = 10$ кН, $M = 212$ кНм,
 $r = 2$ м, $\cos \alpha = 0,8$.

Задача S-30.2.

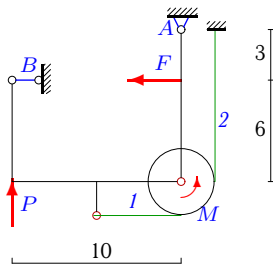
10



$G = 7$ кН, $F = 27$ кН,
 $M = 6$ кНм, $P = 2$ кН, $r = 2$ м.

Задача S-30.3.

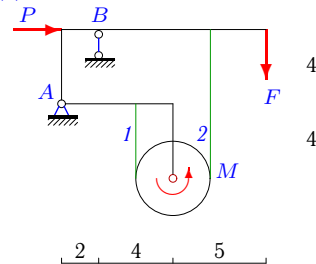
10



$G = 11$ кН, $F = 18$ кН,
 $M = 4$ кНм, $P = 2$ кН, $r = 2$ м.

Задача S-30.4.

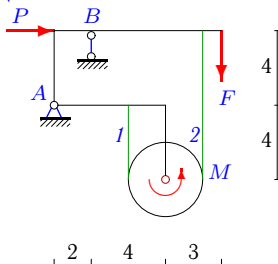
10



$G = 12$ кН, $F = 10$ кН, $M = 24$ кНм,
 $P = 6$ кН, $r = 2$ м.

Задача S-30.5.

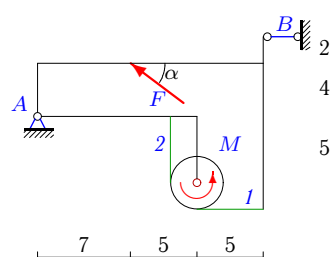
10



$G = 16$ кН, $F = 6$ кН, $M = 80$ кНм,
 $P = 6$ кН, $r = 2$ м.

Задача S-30.6.

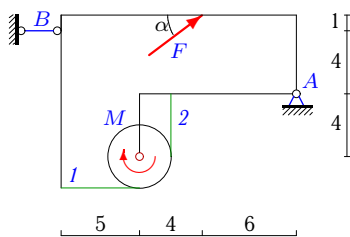
10



$G = 32$ кН, $F = 30$ кН, $M = 132$ кНм,
 $r = 2$ м, $\cos \alpha = 0,8$.

Задача S-30.7.

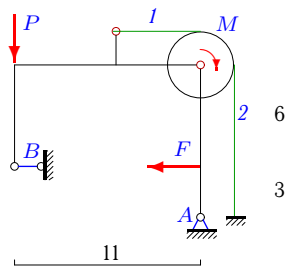
10



$G = 13 \text{ кН}$, $F = 10 \text{ кН}$, $M = 82 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.8.

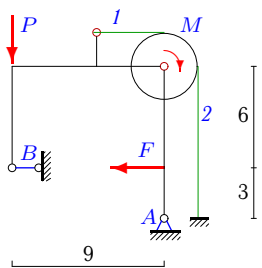
10



$G = 6 \text{ кН}$, $F = 27 \text{ кН}$,
 $M = 6 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.9.

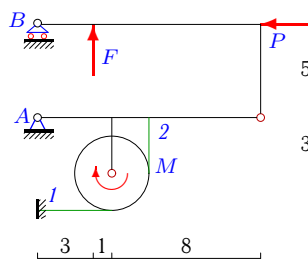
10



$G = 9 \text{ кН}$, $F = 9 \text{ кН}$,
 $M = 2 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.10.

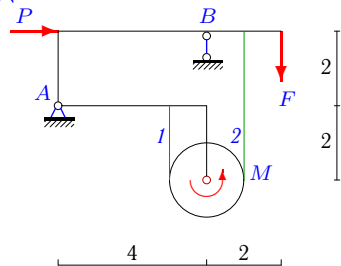
10



$G = 16 \text{ кН}$, $F = 24 \text{ кН}$, $M = 338 \text{ кНм}$,
 $P = 72 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.11.

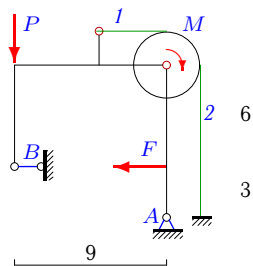
10



$G = 40 \text{ кН}$, $F = 8 \text{ кН}$, $M = 140 \text{ кНм}$,
 $P = 12 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.12.

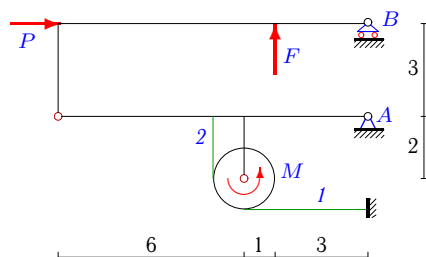
10



$G = 9 \text{ кН}$, $F = 9 \text{ кН}$,
 $M = 2 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.13.

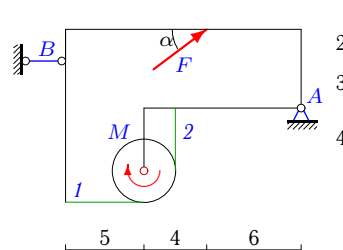
10



$G = 13 \text{ кН}$, $F = 10 \text{ кН}$, $M = 86 \text{ кНм}$,
 $P = 40 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.14.

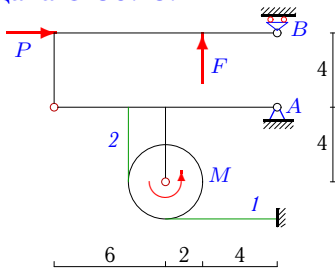
10



$G = 25 \text{ кН}$, $F = 15 \text{ кН}$, $M = 178 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.15.

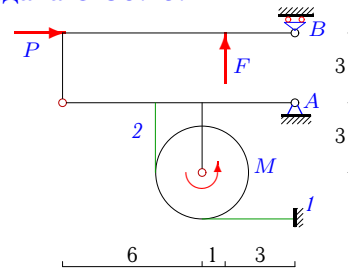
10



$G = 21 \text{ кН}, F = 24 \text{ кН}, M = 138 \text{ кНм},$
 $P = 48 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.16.

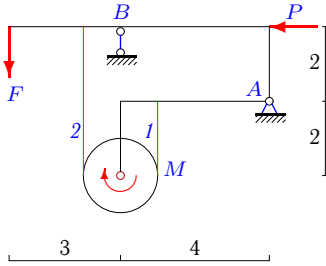
10



$G = 24 \text{ кН}, F = 20 \text{ кН}, M = 74 \text{ кНм},$
 $P = 40 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.17.

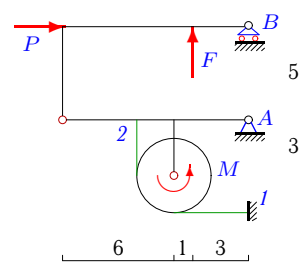
10



$G = 24 \text{ кН}, F = 12 \text{ кН}, M = 56 \text{ кНм},$
 $P = 16 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.18.

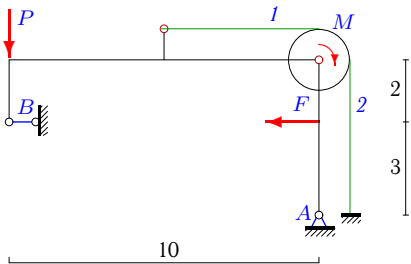
10



$G = 15 \text{ кН}, F = 20 \text{ кН}, M = 170 \text{ кНм},$
 $P = 40 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.19.

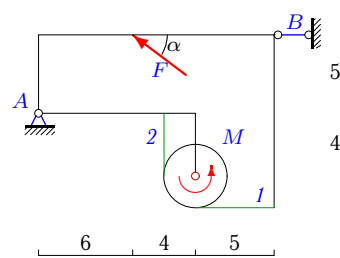
10



$G = 7 \text{ кН}, F = 10 \text{ кН},$
 $M = 3 \text{ кНм}, P = 2 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.20.

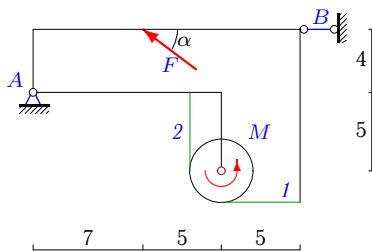
10



$G = 31 \text{ кН}, F = 25 \text{ кН}, M = 190 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.21.

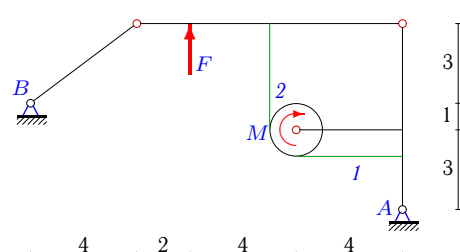
10



$G = 32 \text{ кН}, F = 20 \text{ кН}, M = 216 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.22.

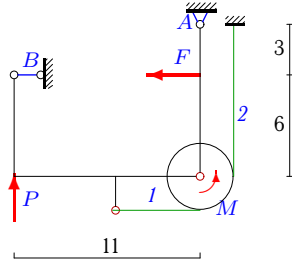
10



$G = 106 \text{ кН}, F = 55 \text{ кН},$
 $M = 158 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.23.

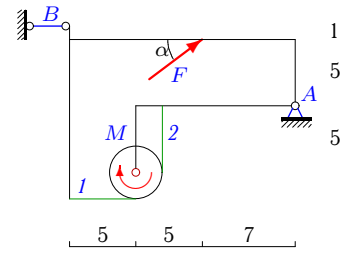
10



$G = 11 \text{ кН}, F = 27 \text{ кН},$
 $M = 6 \text{ кНм}, P = 2 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.24.

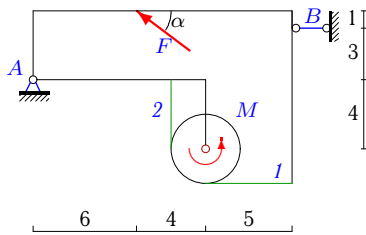
10



$G = 26 \text{ кН}, F = 30 \text{ кН}, M = 60 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.25.

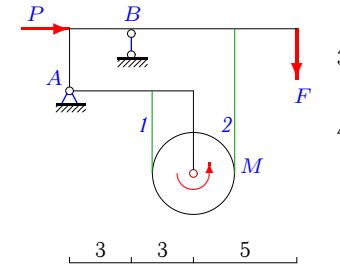
10



$G = 22 \text{ кН}, F = 15 \text{ кН}, M = 148 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.26.

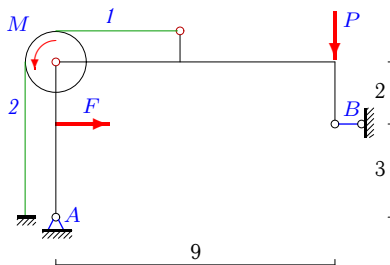
10



$G = 45 \text{ кН}, F = 15 \text{ кН}, M = 198 \text{ кНм},$
 $P = 9 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.27.

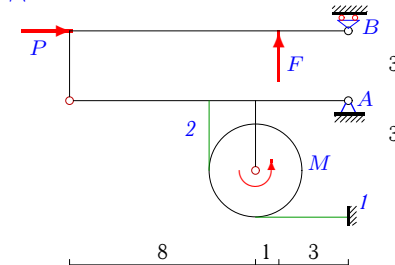
10



$G = 4 \text{ кН}, F = 5 \text{ кН},$
 $M = 2 \text{ кНм}, P = 2 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.28.

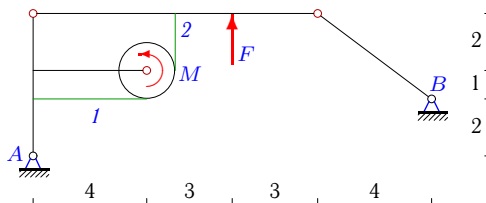
10



$G = 20 \text{ кН}, F = 24 \text{ кН}, M = 198 \text{ кНм},$
 $P = 72 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.29.

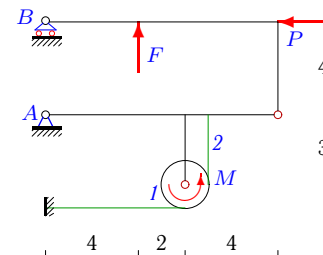
10



$G = 34 \text{ кН}, F = 20 \text{ кН},$
 $M = 46 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.30.

10



$G = 17 \text{ кН}, F = 10 \text{ кН}, M = 6 \text{ кНм},$
 $P = 20 \text{ кН}, r = 1 \text{ м}.$

S-30 Ответы.**Составная конструкция из трех тел с нитью**

22.03.2013

№	X_A	Y_A	R_B	S_1	S_2
1	-13	23	21	4	110
2	-18	44	9	38	35
3	-12	17	6	28	26
4	-6	-69	91	18	6
5	-6	-25	47	42	2
6	29	14	-5	36	102
7	-15	7	-7	8	49
8	-18	43	9	38	35
9	-6	28	3	18	17
10	78	-20	12	6	175
11	-12	25	23	144	4
12	-6	28	3	18	17
13	-44	-2	5	4	90
14	-26	16	-14	12	101
15	-52	-3	0	4	73
16	-42	6	-2	2	39
17	16	-3	39	64	8
18	-46	-11	6	6	91
19	-4	38	6	32	29
20	6	16	14	20	115
21	21	20	-5	24	132
22	12	60	-15	228	70
23	-18	26	9	38	35
24	-23	8	1	36	66
25	2	13	10	12	86
26	-9	-28	88	108	9
27	-2	28	-3	24	22
28	-74	-4	0	2	101
29	-4	17	-5	68	22
30	26	5	2	6	0

S-30 файл о30s10A