

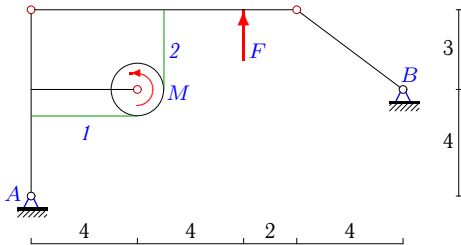
Составная конструкция из трех тел с нитью

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.

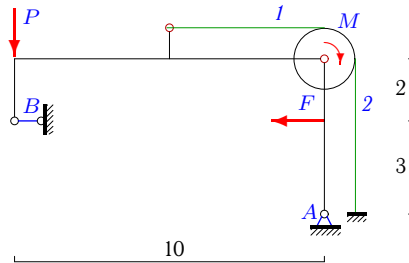
3



$$G = 30 \text{ кН}, F = 15 \text{ кН}, \\ M = 58 \text{ кНм}, r = 1 \text{ м}.$$

Задача S-30.2.

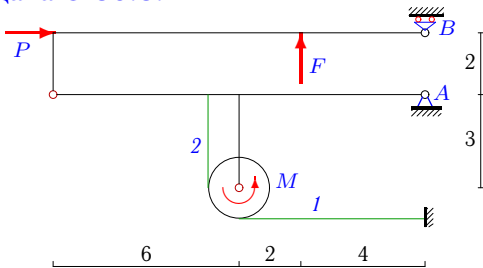
3



$$G = 5 \text{ кН}, F = 10 \text{ кН}, \\ M = 3 \text{ кНм}, P = 2 \text{ кН}, r = 1 \text{ м}.$$

Задача S-30.3.

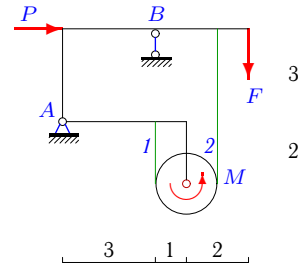
3



$$G = 19 \text{ кН}, F = 12 \text{ кН}, M = 22 \text{ кНм}, \\ P = 48 \text{ кН}, r = 1 \text{ м}.$$

Задача S-30.4.

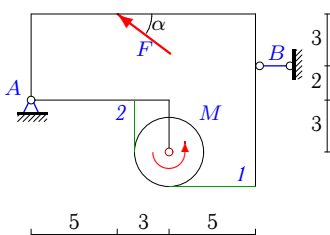
3



$$G = 33 \text{ кН}, F = 6 \text{ кН}, M = 117 \text{ кНм}, \\ P = 12 \text{ кН}, r = 1 \text{ м}.$$

Задача S-30.5.

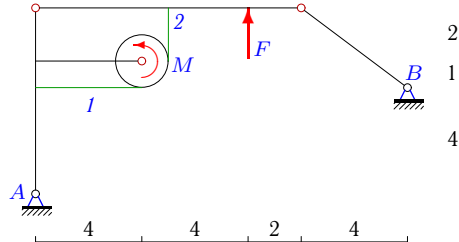
3



$$G = 22 \text{ кН}, F = 10 \text{ кН}, M = 156 \text{ кНм}, \\ r = 2 \text{ м}, \cos \alpha = 0,8.$$

Задача S-30.6.

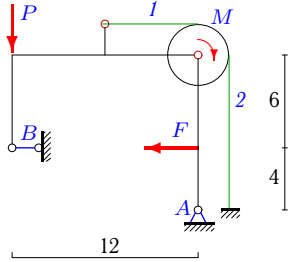
3



$$G = 46 \text{ кН}, F = 25 \text{ кН}, \\ M = 42 \text{ кНм}, r = 1 \text{ м}.$$

Задача S-30.7.

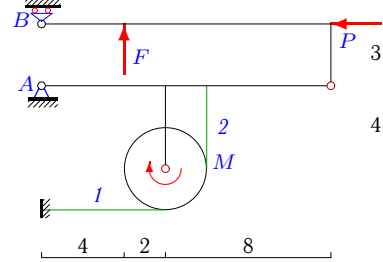
3



$G = 5 \text{ кН}$, $F = 30 \text{ кН}$,
 $M = 8 \text{ кНм}$, $P = 4 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.8.

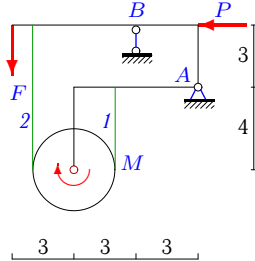
3



$G = 9 \text{ кН}$, $F = 14 \text{ кН}$, $M = 122 \text{ кНм}$,
 $P = 42 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.9.

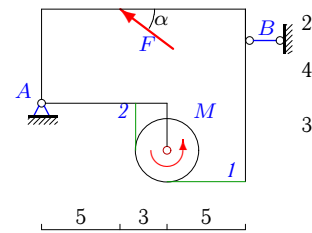
3



$G = 21 \text{ кН}$, $F = 9 \text{ кН}$, $M = 102 \text{ кНм}$,
 $P = 6 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.10.

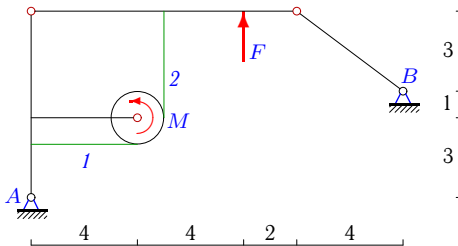
3



$G = 27 \text{ кН}$, $F = 20 \text{ кН}$, $M = 176 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.11.

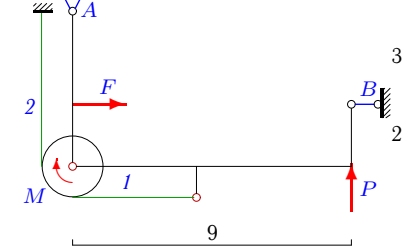
3



$G = 74 \text{ кН}$, $F = 35 \text{ кН}$,
 $M = 190 \text{ кНм}$, $r = 1 \text{ м}$.

Задача S-30.12.

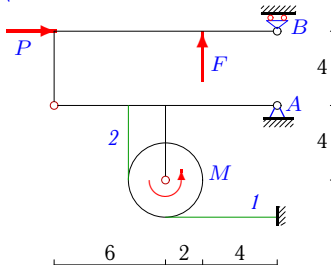
3



$G = 10 \text{ кН}$, $F = 5 \text{ кН}$,
 $M = 2 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.13.

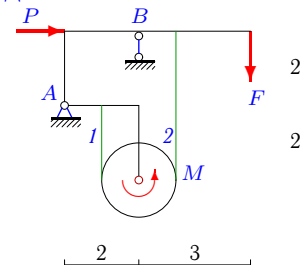
3



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

Задача S-30.14.

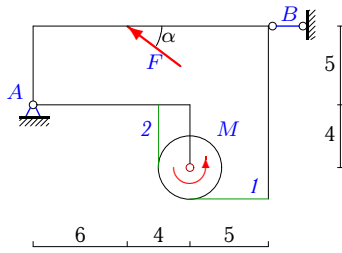
3



$G = 26 \text{ кН}$, $F = 6 \text{ кН}$, $M = 40 \text{ кНм}$,
 $P = 8 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.15.

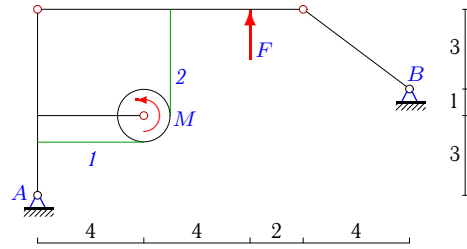
3



$G = 32 \text{ кН}, F = 25 \text{ кН}, M = 200 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.16.

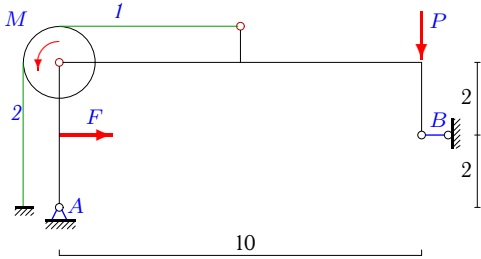
3



$G = 74 \text{ кН}, F = 35 \text{ кН},$
 $M = 190 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.17.

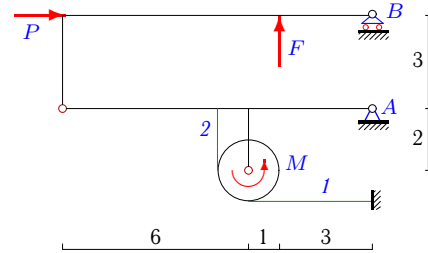
3



$G = 4 \text{ кН}, F = 12 \text{ кН},$
 $M = 3 \text{ кНм}, P = 1 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.18.

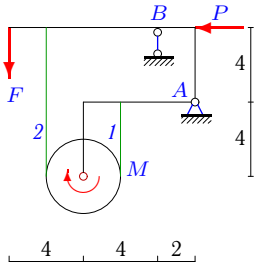
3



$G = 16 \text{ кН}, F = 10 \text{ кН}, M = 74 \text{ кНм},$
 $P = 40 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.19.

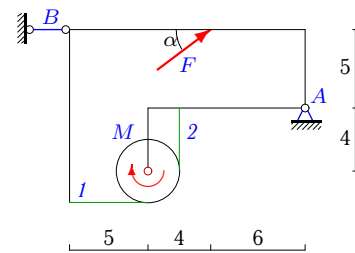
3



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

Задача S-30.20.

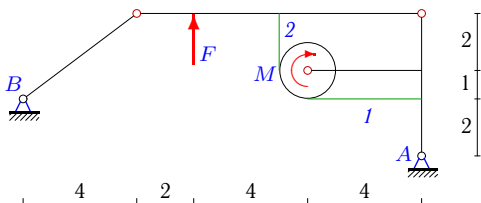
3



$G = 25 \text{ кН}, F = 25 \text{ кН}, M = 130 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.21.

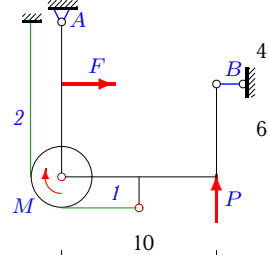
3



$G = 62 \text{ кН}, F = 35 \text{ кН},$
 $M = 18 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.22.

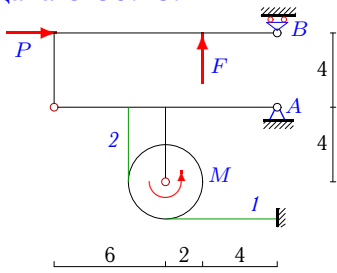
3



$G = 9 \text{ кН}, F = 10 \text{ кН},$
 $M = 4 \text{ кНм}, P = 4 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.23.

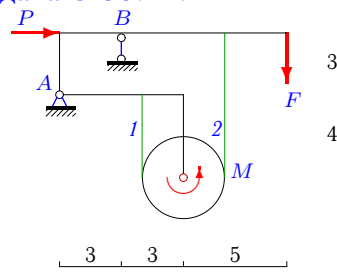
3



$G = 5 \text{ кН}, F = 6 \text{ кН}, M = 36 \text{ кНм},$
 $P = 12 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.24.

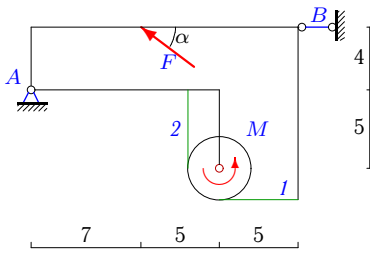
3



$G = 36 \text{ кН}, F = 15 \text{ кН}, M = 144 \text{ кНм},$
 $P = 6 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.25.

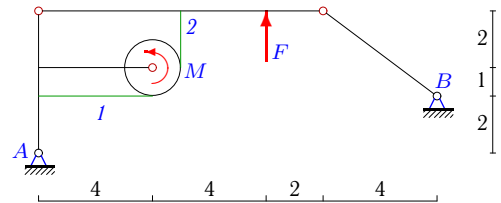
3



$G = 30 \text{ кН}, F = 20 \text{ кН}, M = 192 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.26.

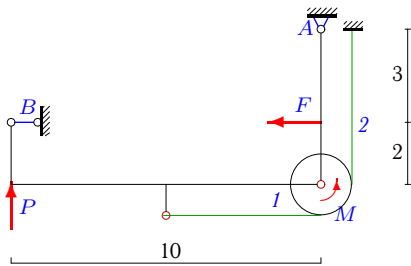
3



$G = 46 \text{ кН}, F = 25 \text{ кН},$
 $M = 34 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.27.

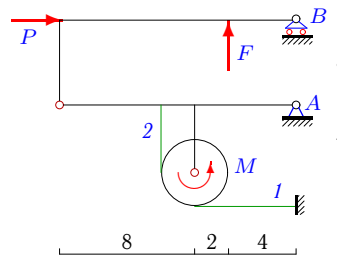
3



$G = 15 \text{ кН}, F = 10 \text{ кН},$
 $M = 3 \text{ кНм}, P = 2 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.28.

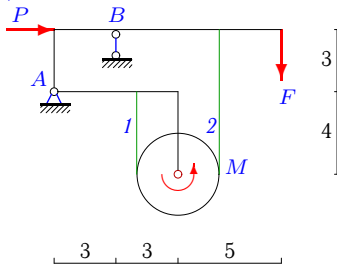
3



$G = 7 \text{ кН}, F = 14 \text{ кН}, M = 206 \text{ кНм},$
 $P = 42 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.29.

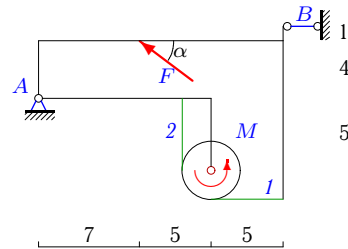
3



$G = 15 \text{ кН}, F = 15 \text{ кН}, M = 18 \text{ кНм},$
 $P = 6 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.30.

3



$G = 23 \text{ кН}, F = 25 \text{ кН}, M = 66 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

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

22.03.2013

№	X_A	Y_A	R_B	S_1	S_2
1	-4	18	-5	76	18
2	-4	36	6	32	29
3	-50	7	0	2	24
4	-12	10	29	120	3
5	-17	16	25	4	82
6	-4	24	-5	76	34
7	-18	65	12	60	56
8	43	-4	-1	1	62
9	6	-11	41	54	3
10	-13	15	29	8	96
11	-12	48	-15	228	38
12	-2	14	-3	24	22
13	-52	-3	0	4	73
14	-8	3	29	44	4
15	6	17	14	20	120
16	-12	48	-15	228	38
17	-6	24	-6	22	19
18	-44	1	5	4	78
19	2	-13	18	6	1
20	-34	10	-14	20	85
21	4	30	-5	68	50
22	-6	25	-4	32	30
23	-13	-1	0	1	19
24	-6	-34	85	81	9
25	21	18	-5	24	120
26	-4	24	-5	68	34
27	-4	16	6	32	29
28	-45	-12	5	3	106
29	-6	-55	85	18	9
30	25	8	-5	30	63

S-30 файл о30s3A