

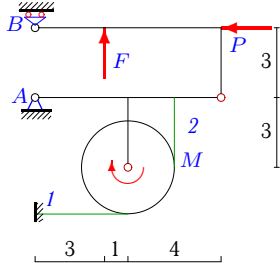
Составная конструкция из трех тел с нитью

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.

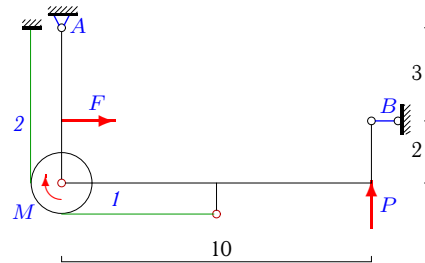
5



$$G = 16 \text{ кН}, F = 16 \text{ кН}, M = 22 \text{ кНм}, \\ P = 16 \text{ кН}, r = 2 \text{ м}.$$

Задача S-30.2.

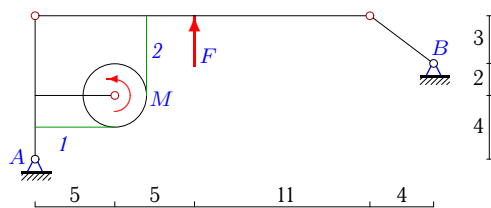
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$$G = 9 \text{ кН}, F = 10 \text{ кН}, \\ M = 3 \text{ кНм}, P = 2 \text{ кН}, r = 1 \text{ м}.$$

Задача S-30.3.

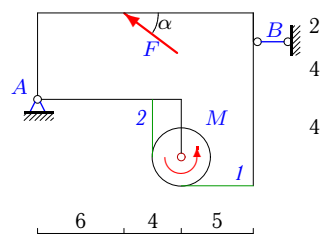
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$$G = 29 \text{ кН}, F = 14 \text{ кН}, \\ M = 104 \text{ кНм}, r = 2 \text{ м}.$$

Задача S-30.4.

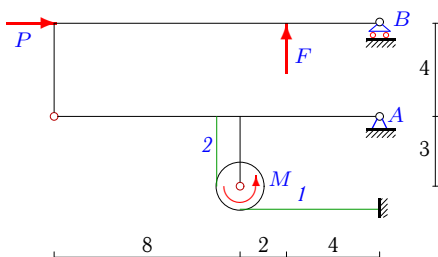
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$$G = 23 \text{ кН}, F = 20 \text{ кН}, M = 134 \text{ кНм}, \\ r = 2 \text{ м}, \cos \alpha = 0,8.$$

Задача S-30.5.

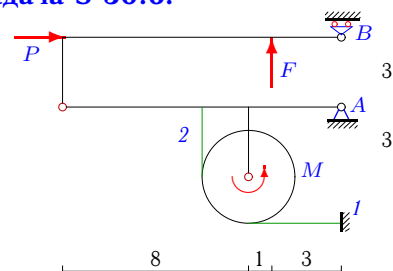
5



$$G = 21 \text{ кН}, F = 14 \text{ кН}, M = 242 \text{ кНм}, \\ P = 84 \text{ кН}, r = 1 \text{ м}.$$

Задача S-30.6.

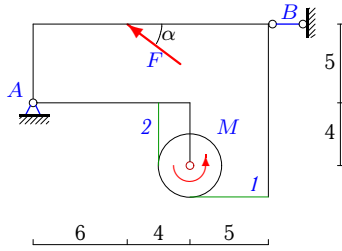
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$$G = 20 \text{ кН}, F = 24 \text{ кН}, M = 198 \text{ кНм}, \\ P = 72 \text{ кН}, r = 2 \text{ м}.$$

Задача S-30.7.

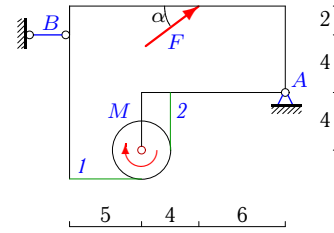
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$G = 31 \text{ кН}$, $F = 25 \text{ кН}$, $M = 190 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.8.

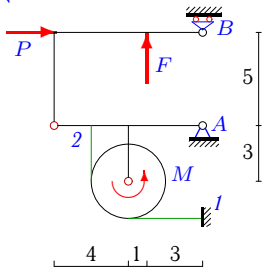
5



$G = 25 \text{ кН}$, $F = 20 \text{ кН}$, $M = 154 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.9.

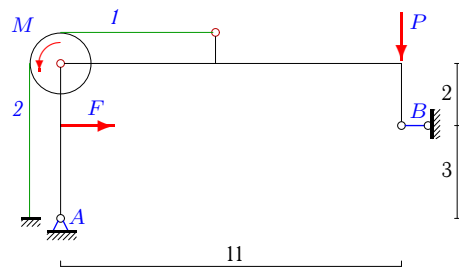
5



$G = 22 \text{ кН}$, $F = 16 \text{ кН}$, $M = 10 \text{ кНм}$,
 $P = 16 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.10.

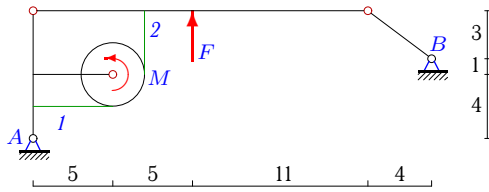
5



$G = 2 \text{ кН}$, $F = 15 \text{ кН}$,
 $M = 4 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.11.

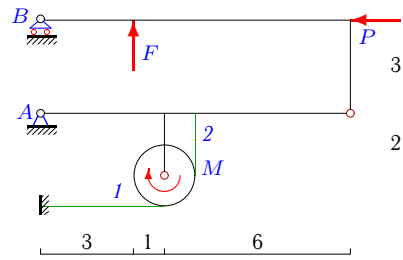
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$G = 68 \text{ кН}$, $F = 35 \text{ кН}$,
 $M = 180 \text{ кНм}$, $r = 2 \text{ м}$.

Задача S-30.12.

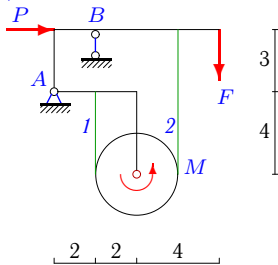
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$G = 18 \text{ кН}$, $F = 10 \text{ кН}$, $M = 66 \text{ кНм}$,
 $P = 40 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.13.

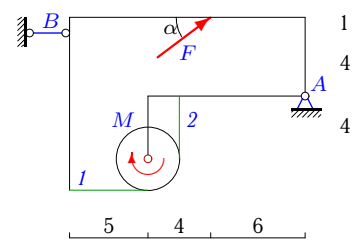
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$G = 4 \text{ кН}$, $F = 4 \text{ кН}$, $M = 4 \text{ кНм}$,
 $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.14.

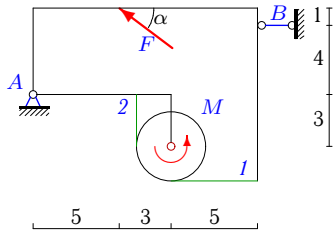
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$G = 13 \text{ кН}$, $F = 10 \text{ кН}$, $M = 82 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.15.

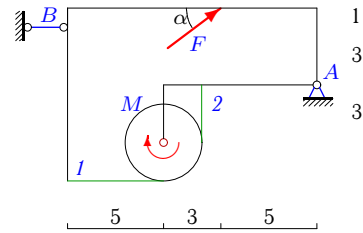
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$G = 22 \text{ кН}, F = 20 \text{ кН}, M = 136 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.16.

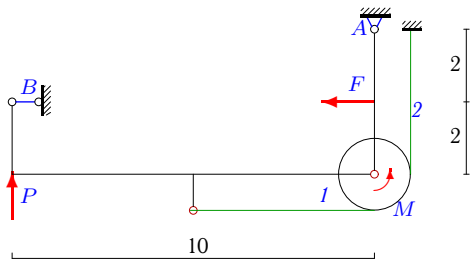
5



$G = 26 \text{ кН}, F = 15 \text{ кН}, M = 178 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.17.

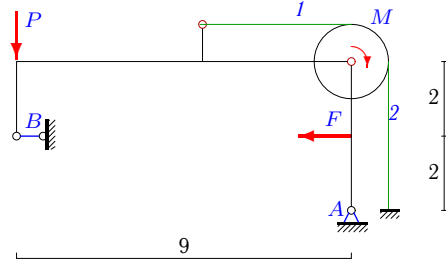
5



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

Задача S-30.18.

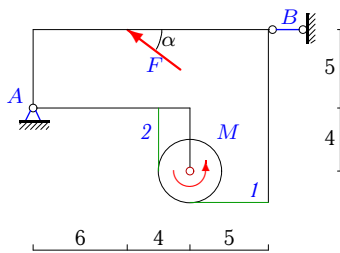
5



$G = 5 \text{ кН}, F = 8 \text{ кН},$
 $M = 2 \text{ кНм}, P = 1 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.19.

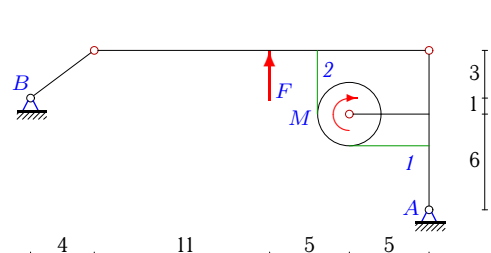
5



$G = 30 \text{ кН}, F = 25 \text{ кН}, M = 180 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.20.

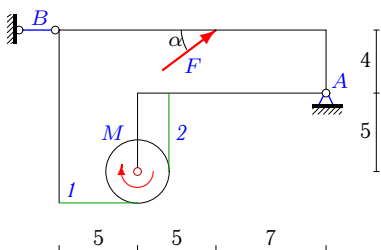
5



$G = 108 \text{ кН}, F = 63 \text{ кН},$
 $M = 116 \text{ кНм}, r = 2 \text{ м}.$

Задача S-30.21.

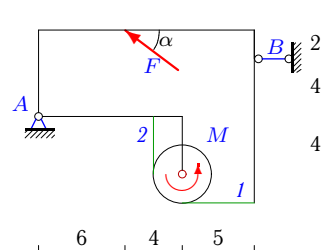
5



$G = 25 \text{ кН}, F = 20 \text{ кН}, M = 132 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.22.

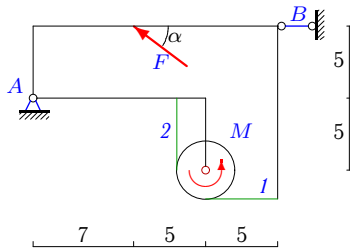
5



$G = 23 \text{ кН}, F = 20 \text{ кН}, M = 134 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.23.

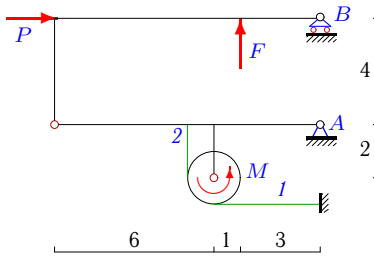
5



$G = 31 \text{ кН}, F = 25 \text{ кН}, M = 162 \text{ кНм},$
 $r = 2 \text{ м}, \cos \alpha = 0,8.$

Задача S-30.24.

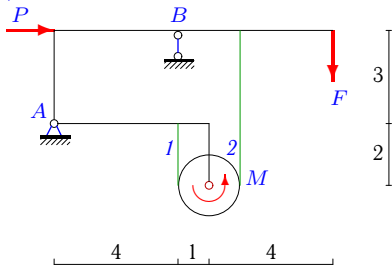
5



$G = 23 \text{ кН}, F = 10 \text{ кН}, M = 80 \text{ кНм},$
 $P = 40 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.25.

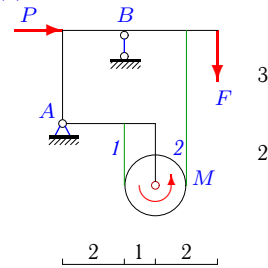
5



$G = 10 \text{ кН}, F = 8 \text{ кН}, M = 14 \text{ кНм},$
 $P = 8 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.26.

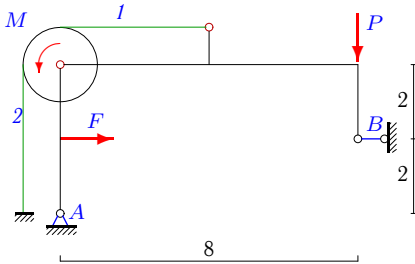
5



$G = 16 \text{ кН}, F = 4 \text{ кН}, M = 40 \text{ кНм},$
 $P = 6 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.27.

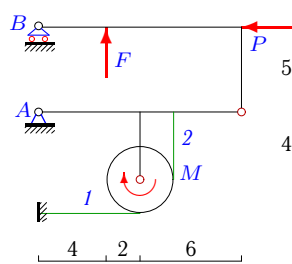
5



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

Задача S-30.28.

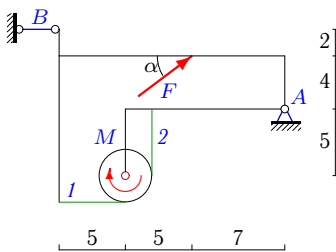
5



$G = 9 \text{ кН}, F = 12 \text{ кН}, M = 96 \text{ кНм},$
 $P = 24 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.29.

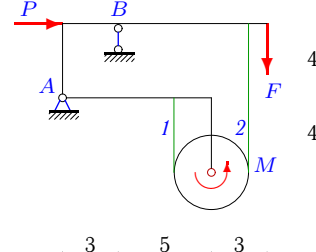
5



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

Задача S-30.30.

5



$G = 13 \text{ кН}, F = 3 \text{ кН}, M = 94 \text{ кНм},$
 $P = 5 \text{ кН}, r = 2 \text{ м}.$

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

22.03.2013

№	X_A	Y_A	R_B	S_1	S_2
1	18	4	-4	2	13
2	-4	22	-6	32	29
3	-4	18	-5	63	11
4	-2	11	18	16	83
5	-90	-7	14	6	248
6	-74	-4	0	2	101
7	6	16	14	20	115
8	-34	13	-18	16	93
9	-22	6	0	6	11
10	-6	40	-9	40	36
11	-8	39	-10	122	32
12	44	3	5	4	70
13	-2	-17	25	4	2
14	-15	7	-7	8	49
15	-9	10	25	8	76
16	-33	17	-21	6	95
17	-6	8	6	22	19
18	-4	21	4	17	15
19	6	15	14	20	110
20	8	51	-10	130	72
21	-11	13	5	24	90
22	-2	11	18	16	83
23	21	16	-1	30	111
24	-46	4	9	6	86
25	-8	-15	33	20	6
26	-6	-3	23	42	2
27	-2	17	-2	12	11
28	27	-5	2	3	51
29	-19	8	5	36	66
30	-5	-5	21	48	1

S-30 файл о30s5A