

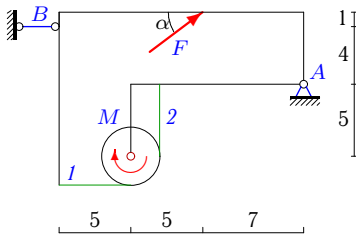
Составная конструкция из трех тел с нитью

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.

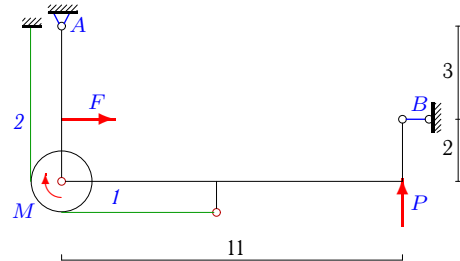
7



$G = 26$ кН, $F = 20$ кН, $M = 144$ кНм,
 $r = 2$ м, $\cos \alpha = 0,8$.

Задача S-30.2.

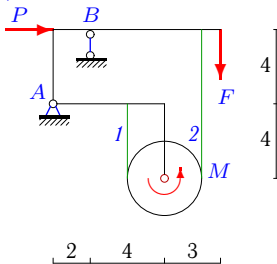
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$G = 8$ кН, $F = 15$ кН,
 $M = 4$ кНм, $P = 2$ кН, $r = 1$ м.

Задача S-30.3.

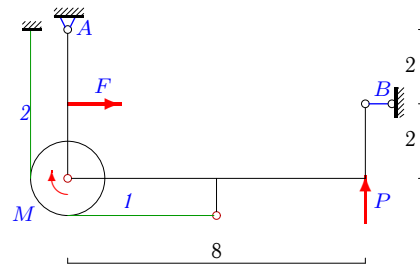
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$G = 26$ кН, $F = 6$ кН, $M = 140$ кНм,
 $P = 8$ кН, $r = 2$ м.

Задача S-30.4.

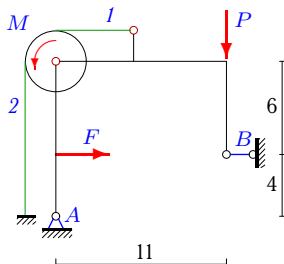
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$G = 9$ кН, $F = 4$ кН,
 $M = 1$ кНм, $P = 1$ кН, $r = 1$ м.

Задача S-30.5.

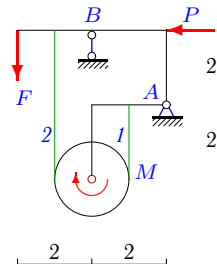
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$G = 3$ кН, $F = 20$ кН,
 $M = 6$ кНм, $P = 4$ кН, $r = 2$ м.

Задача S-30.6.

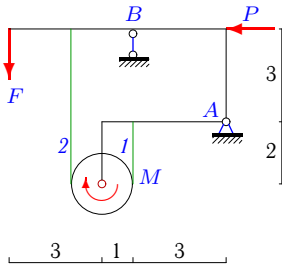
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$G = 12$ кН, $F = 4$ кН, $M = 18$ кНм,
 $P = 4$ кН, $r = 1$ м.

Задача S-30.7.

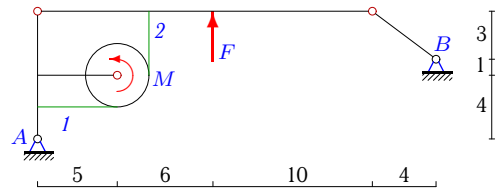
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$G = 18 \text{ кН}$, $F = 9 \text{ кН}$, $M = 42 \text{ кНм}$,
 $P = 12 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.8.

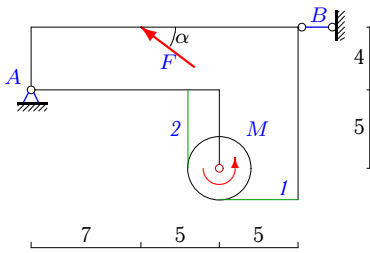
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$G = 42 \text{ кН}$, $F = 21 \text{ кН}$,
 $M = 74 \text{ кНм}$, $r = 2 \text{ м}$.

Задача S-30.9.

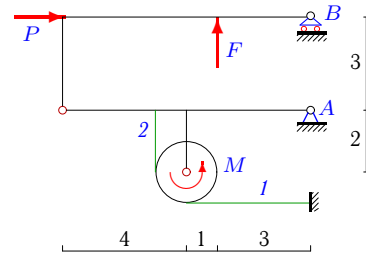
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$G = 21 \text{ кН}$, $F = 20 \text{ кН}$, $M = 84 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.10.

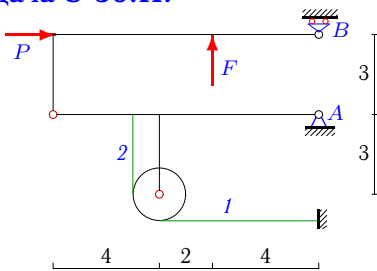
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$G = 12 \text{ кН}$, $F = 8 \text{ кН}$, $M = 12 \text{ кНм}$,
 $P = 16 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.11.

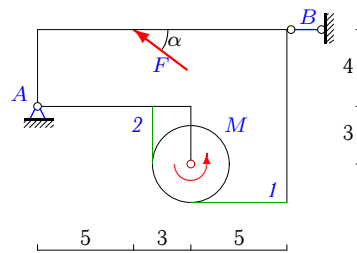
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$G = 7 \text{ кН}$, $F = 5 \text{ кН}$,
 $P = 10 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.12.

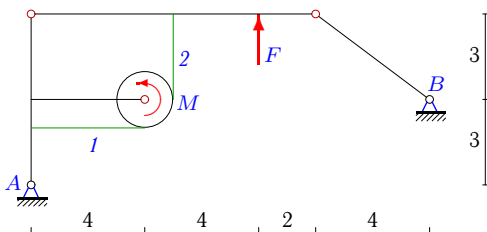
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$G = 30 \text{ кН}$, $F = 20 \text{ кН}$, $M = 200 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.13.

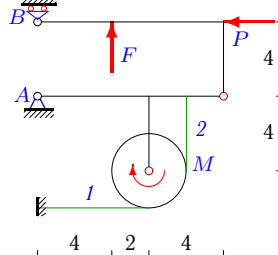
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$G = 38 \text{ кН}$, $F = 20 \text{ кН}$,
 $M = 46 \text{ кНм}$, $r = 1 \text{ м}$.

Задача S-30.14.

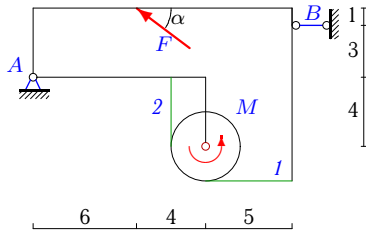
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$G = 9 \text{ кН}$, $F = 10 \text{ кН}$, $M = 14 \text{ кНм}$,
 $P = 10 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.15.

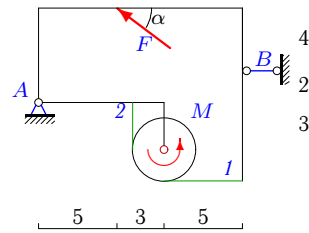
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$G = 30 \text{ кН}$, $F = 15 \text{ кН}$, $M = 228 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.16.

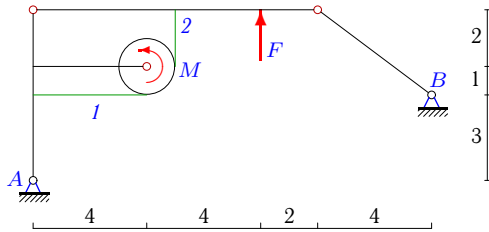
7



$G = 27 \text{ кН}$, $F = 10 \text{ кН}$, $M = 196 \text{ кНм}$,
 $r = 2 \text{ м}$, $\cos \alpha = 0,8$.

Задача S-30.17.

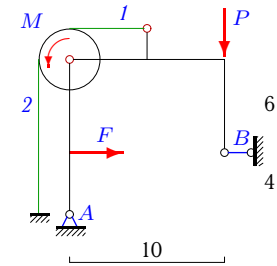
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$G = 62 \text{ кН}$, $F = 35 \text{ кН}$,
 $M = 22 \text{ кНм}$, $r = 1 \text{ м}$.

Задача S-30.18.

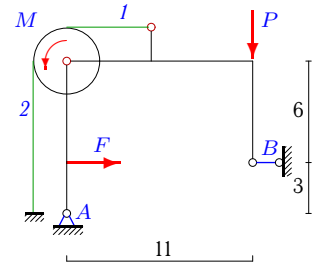
7



$G = 5 \text{ кН}$, $F = 10 \text{ кН}$,
 $M = 4 \text{ кНм}$, $P = 4 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.19.

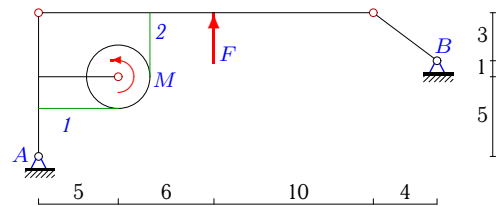
7



$G = 4 \text{ кН}$, $F = 27 \text{ кН}$,
 $M = 6 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.20.

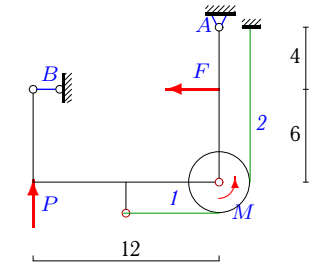
7



$G = 42 \text{ кН}$, $F = 21 \text{ кН}$,
 $M = 78 \text{ кНм}$, $r = 2 \text{ м}$.

Задача S-30.21.

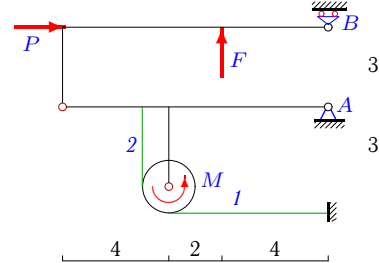
7



$G = 7 \text{ кН}$, $F = 15 \text{ кН}$,
 $M = 4 \text{ кНм}$, $P = 2 \text{ кН}$, $r = 2 \text{ м}$.

Задача S-30.22.

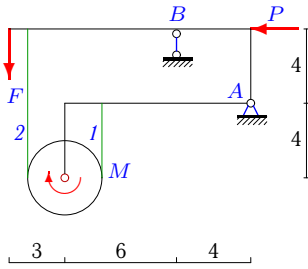
7



$G = 6 \text{ кН}$, $F = 5 \text{ кН}$, $M = 6 \text{ кНм}$,
 $P = 10 \text{ кН}$, $r = 1 \text{ м}$.

Задача S-30.23.

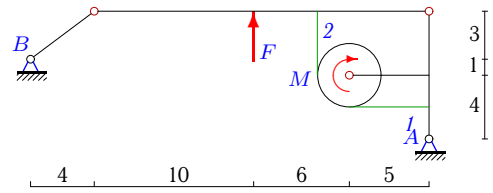
7



$G = 28 \text{ кН}, F = 12 \text{ кН}, M = 232 \text{ кНм},$
 $P = 20 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.24.

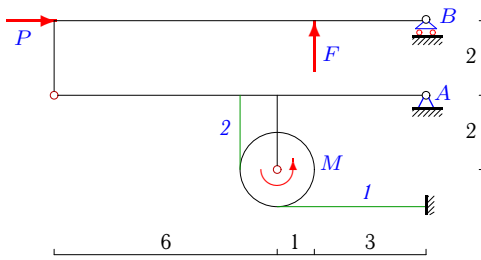
7



$G = 64 \text{ кН}, F = 35 \text{ кН},$
 $M = 30 \text{ кНм}, r = 2 \text{ м}.$

Задача S-30.25.

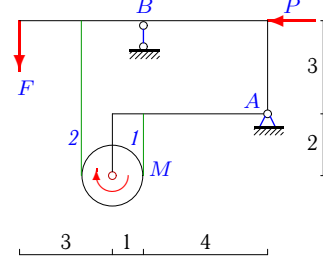
7



$G = 21 \text{ кН}, F = 10 \text{ кН}, M = 20 \text{ кНм},$
 $P = 40 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.26.

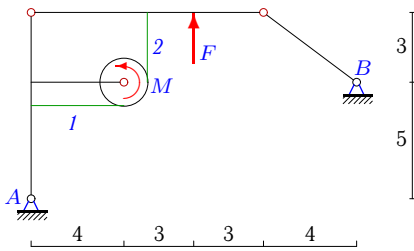
7



$G = 7 \text{ кН}, F = 3 \text{ кН}, M = 23 \text{ кНм},$
 $P = 4 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.27.

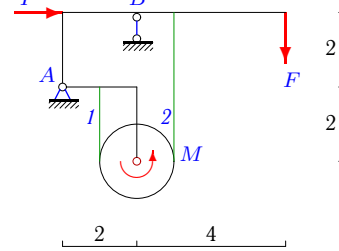
7



$G = 61 \text{ кН}, F = 35 \text{ кН},$
 $M = 123 \text{ кНм}, r = 1 \text{ м}.$

Задача S-30.28.

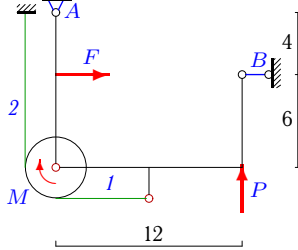
7



$G = 30 \text{ кН}, F = 8 \text{ кН}, M = 42 \text{ кНм},$
 $P = 6 \text{ кН}, r = 1 \text{ м}.$

Задача S-30.29.

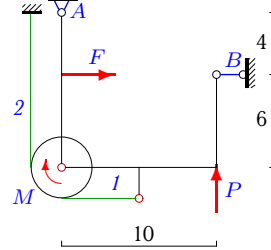
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$G = 9 \text{ кН}, F = 30 \text{ кН},$
 $M = 8 \text{ кНм}, P = 4 \text{ кН}, r = 2 \text{ м}.$

Задача S-30.30.

7



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

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

22.03.2013

№	X_A	Y_A	R_B	S_1	S_2
1	-15	14	1	24	96
2	-6	30	-9	40	36
3	-8	-19	51	72	2
4	-2	3	-2	12	11
5	-12	50	-8	46	43
6	4	1	15	20	2
7	12	-16	43	48	6
8	-4	24	-5	61	24
9	21	9	-5	24	66
10	-20	3	1	4	16
11	-12	2	0	2	2
12	-5	18	21	8	108
13	-4	21	-5	72	26
14	12	1	-2	2	9
15	2	21	10	12	126
16	-21	21	29	4	102
17	-4	30	-5	72	50
18	-6	39	-4	32	30
19	-18	41	-9	38	35
20	-4	24	-5	63	24
21	-9	23	6	30	28
22	-12	1	0	2	8
23	20	-31	71	120	4
24	4	32	-5	61	46
25	-42	10	1	2	22
26	4	-2	12	25	2
27	-8	32	-10	160	37
28	-6	-1	39	48	6
29	-18	51	-12	60	56
30	-6	25	-4	32	30

S-30 файл о30s7A