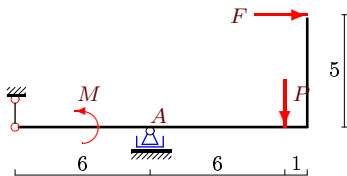


Равновесие рамы с трением

Одна из опор рамы — негладкая неударяющая шарнирная опора в точке A (односторонняя связь). Заданы нагрузки P и M и коэффициент трения скольжения в опоре A . Размеры на рисунке даны в метрах. Для каких значений силы F система находится в положении равновесия?

Задача S-10.1.

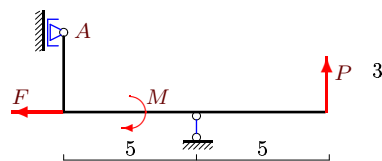
13



$$P = 31 \text{ кН}, M = 21 \text{ кНм}, f_{\text{тр}} = 3/4.$$

Задача S-10.2.

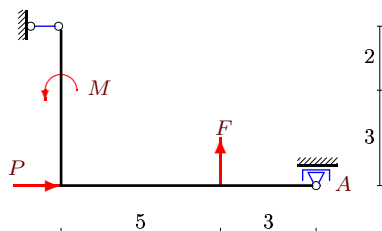
13



$$P = 8 \text{ кН}, M = 12 \text{ кНм}, f_{\text{тр}} = 1/3.$$

Задача S-10.3.

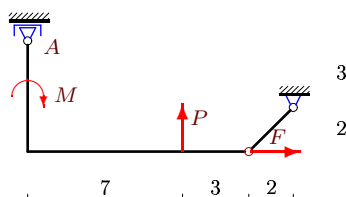
13



$$P = 3 \text{ кН}, M = 12 \text{ кНм}, f_{\text{тр}} = 3/4.$$

Задача S-10.4.

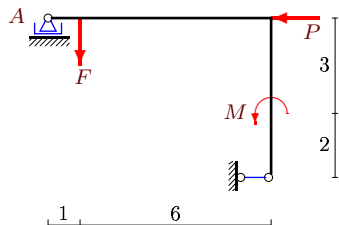
13



$$P = 5 \text{ кН}, M = 10 \text{ кНм}, f_{\text{тр}} = 1/2.$$

Задача S-10.5.

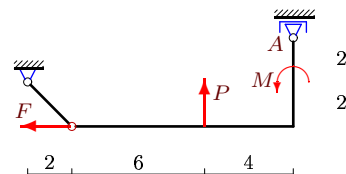
13



$$P = 7 \text{ кН}, M = 49 \text{ кНм}, f_{\text{тр}} = 1/2.$$

Задача S-10.6.

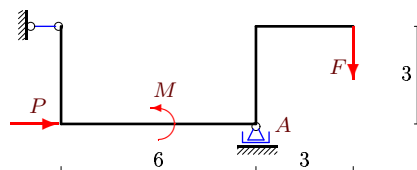
13



$$P = 209 \text{ кН}, M = 418 \text{ кНм}, f_{\text{тр}} = 2/3.$$

Задача S-10.7.

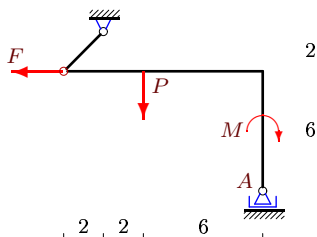
13



$$P = 9 \text{ кН}, M = 9 \text{ кНм}, f_{\text{тр}} = 1/2.$$

Задача S-10.8.

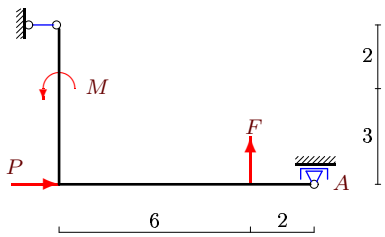
13



$$P = 126 \text{ кН}, M = 126 \text{ кНм}, f_{\text{тр}} = 2/3.$$

Задача S-10.9.

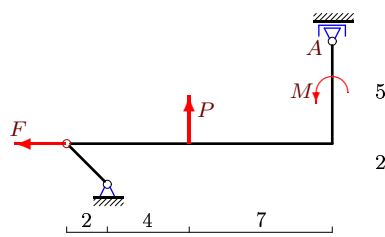
13



$P = 3 \text{ кН}, M = 145 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.10.

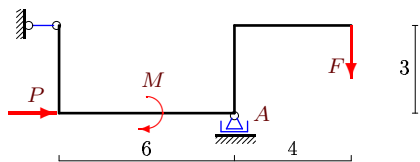
13



$P = 203 \text{ кН}, M = 203 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.11.

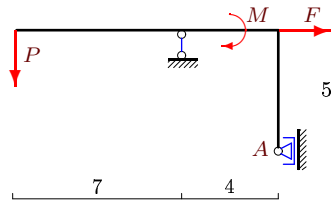
13



$P = 36 \text{ кН}, M = 78 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.12.

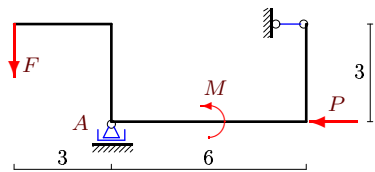
13



$P = 127 \text{ кН}, M = 5 \text{ кНм}, f_{\text{ТР}} = 1/6.$

Задача S-10.13.

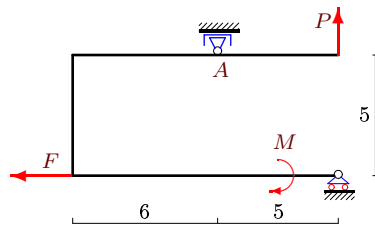
13



$P = 49 \text{ кН}, M = 126 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.14.

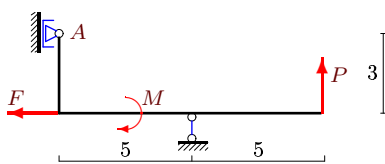
13



$P = 9 \text{ кН}, M = 350 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.15.

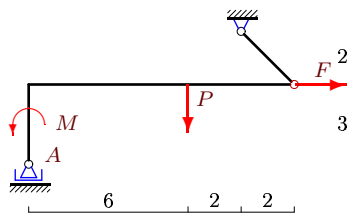
13



$P = 6 \text{ кН}, M = 19 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.16.

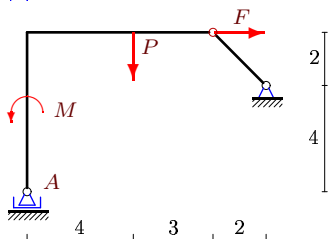
13



$P = 72 \text{ кН}, M = 72 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.17.

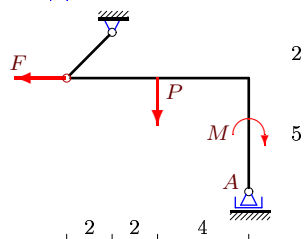
13



$P = 99 \text{ кН}, M = 198 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.18.

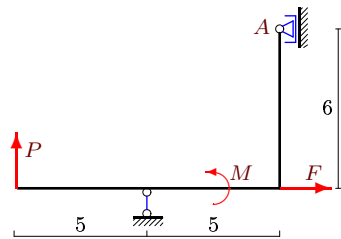
13



$P = 231 \text{ кН}, M = 231 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.19.

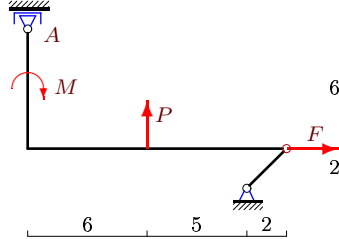
13



$P = 65 \text{ кН}, M = 26 \text{ кНм}, f_{\text{ТР}} = 1/3.$

Задача S-10.20.

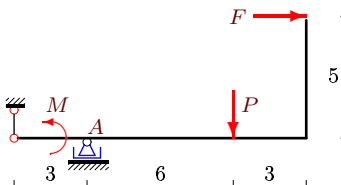
13



$P = 20 \text{ кН}, M = 20 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.21.

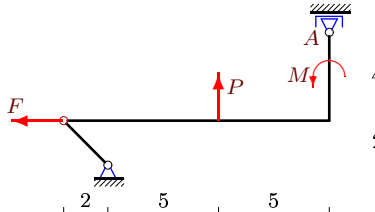
13



$P = 10 \text{ кН}, M = 79 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.22.

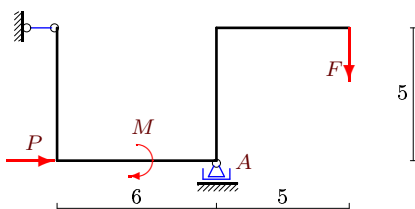
13



$P = 35 \text{ кН}, M = 35 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.23.

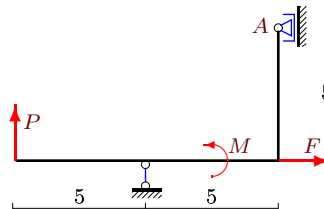
13



$P = 105 \text{ кН}, M = 490 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.24.

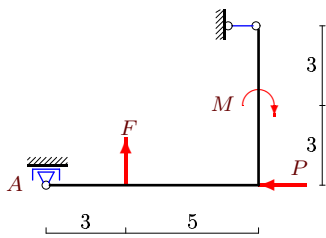
13



$P = 17 \text{ кН}, M = 10 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.25.

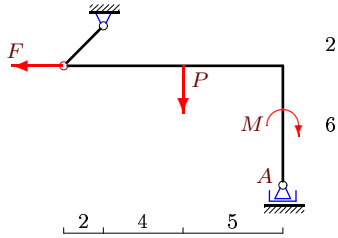
13



$P = 5 \text{ кН}, M = 0 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.26.

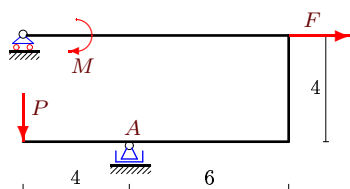
13



$P = 16 \text{ кН}, M = 16 \text{ кНм}, f_{\text{ТР}} = 1/2.$

Задача S-10.27.

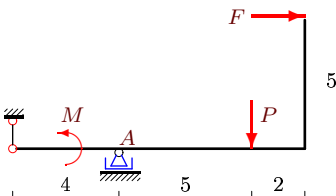
13



$P = 1 \text{ кН}, M = 56 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.28.

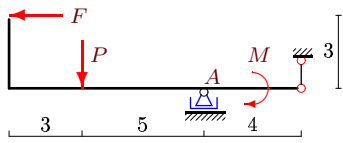
13



$P = 7 \text{ кН}, M = 41 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.29.

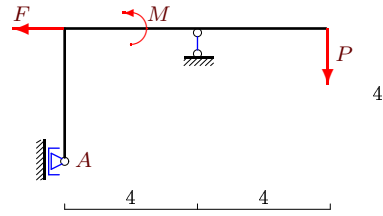
13



$P = 3 \text{ кН}, M = 9 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.30.

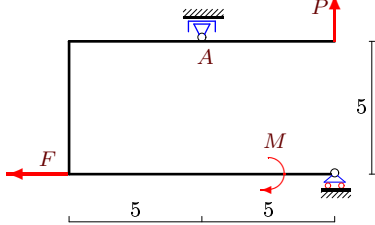
13



$P = 73 \text{ кН}, M = 12 \text{ кНм}, f_{\text{ТР}} = 1/6.$

Задача S-10.31.

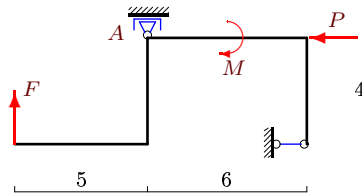
13



$P = 3 \text{ кН}, M = 125 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.32.

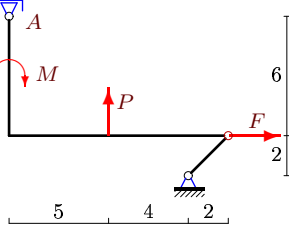
13



$P = 56 \text{ кН}, M = 216 \text{ кНм}, f_{\text{ТР}} = 3/4.$

Задача S-10.33.

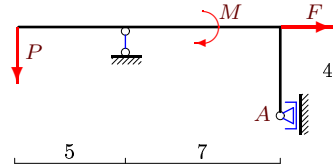
13



$P = 45 \text{ кН}, M = 45 \text{ кНм}, f_{\text{ТР}} = 2/3.$

Задача S-10.34.

13



$P = 75 \text{ кН}, M = 24 \text{ кНм}, f_{\text{ТР}} = 1/5.$

S-10

Ответы.
Равновесие рамы с трением

04.10.2014

№	F
1	$-27 < F < 117$ кН
2	$6 < F < 21$ кН
3	$F > 4$ кН
4	$0 < F < 4$ кН
5	$F > 24$ кН
6	$-171 < F < 165$ кН
7	$8 < F < 24$ кН
8	$-49 < F < 111$ кН
9	$F > 30$ кН
10	$-42 < F < 174$ кН
11	$5 < F < 15$ кН
12	$156 < F < 204$ кН
13	$4 < F < 28$ кН
14	$-30 < F < 210$ кН
15	$2 < F < 22$ кН
16	$-3 < F < 62$ кН
17	$-176 < F < 84$ кН
18	$-84 < F < 176$ кН
19	$39 < F < 69$ кН
20	$-4 < F < 15$ кН
21	$-1 < F < 11$ кН
22	$-7 < F < 25$ кН
23	$4 < F < 28$ кН
24	$10 < F < 30$ кН
25	$F > 4$ кН
26	$-5 < F < 12$ кН
27	$-6 < F < 42$ кН
28	$-2 < F < 22$ кН
29	$-2 < F < 6$ кН
30	$60 < F < 84$ кН
31	$-10 < F < 50$ кН
32	$1 < F < 4$ кН
33	$-30 < F < 38$ кН
34	$65 < F < 135$ кН

S-10 файл о10s13A