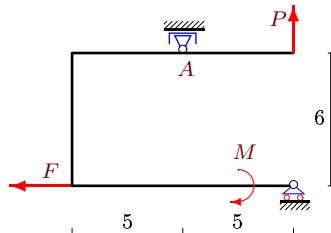


Равновесие рамы с трением

Одна из опор рамы — негладкая неудерживающая 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.

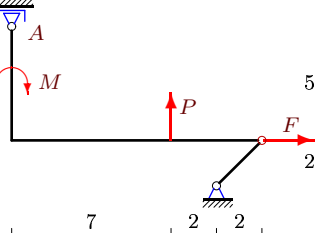
15



$$P = 14 \text{ кН}, M = 81 \text{ кНм}, f_{\text{тр}} = 2/3.$$

Задача S-10.2.

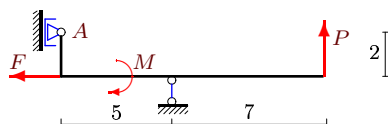
15



$$P = 459 \text{ кН}, M = 459 \text{ кНм}, f_{\text{тр}} = 1/2.$$

Задача S-10.3.

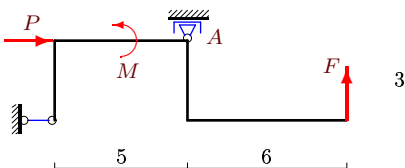
15



$$P = 22 \text{ кН}, M = 35 \text{ кНм}, f_{\text{тр}} = 1/6.$$

Задача S-10.4.

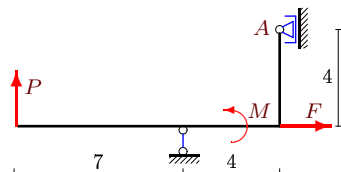
15



$$P = 819 \text{ кН}, M = 1872 \text{ кНм}, f_{\text{тр}} = 5/4.$$

Задача S-10.5.

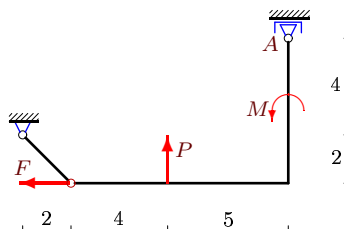
15



$$P = 39 \text{ кН}, M = 33 \text{ кНм}, f_{\text{тр}} = 1/4.$$

Задача S-10.6.

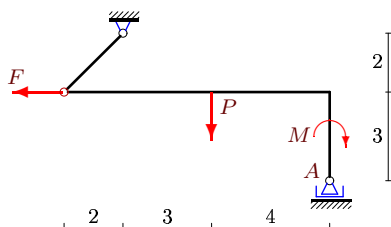
15



$$P = 13 \text{ кН}, M = 26 \text{ кНм}, f_{\text{тр}} = 2/3.$$

Задача S-10.7.

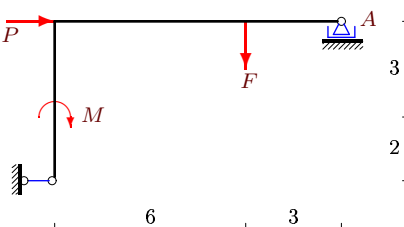
15



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

Задача S-10.8.

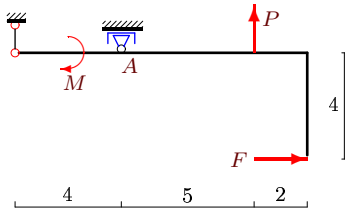
15



$$P = 7 \text{ кН}, M = 19 \text{ кНм}, f_{\text{тр}} = 3/4.$$

Задача S-10.9.

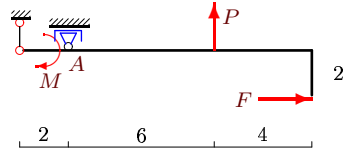
15



$P = 7 \text{ кН}, M = 39 \text{ кНМ}, f_{\text{ТР}} = 1/2.$

Задача S-10.10.

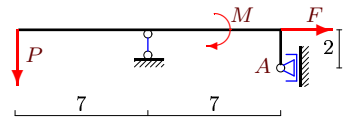
15



$P = 2 \text{ кН}, M = 11 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.11.

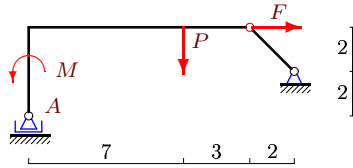
15



$P = 17 \text{ кН}, M = 68 \text{ кНМ}, f_{\text{ТР}} = 1/5.$

Задача S-10.12.

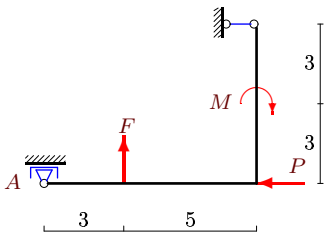
15



$P = 418 \text{ кН}, M = 836 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.13.

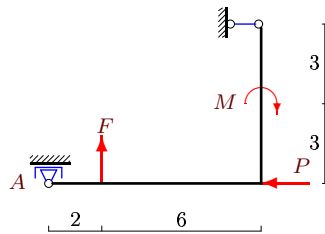
15



$P = 5 \text{ кН}, M = 60 \text{ кНМ}, f_{\text{ТР}} = 3/4.$

Задача S-10.14.

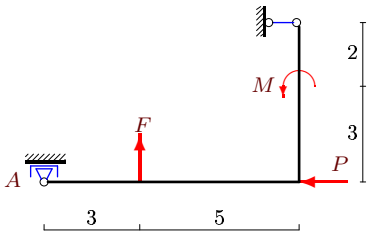
15



$P = 1 \text{ кН}, M = 24 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.15.

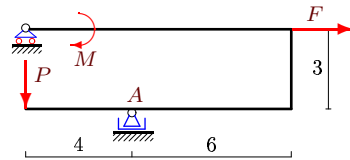
15



$P = 7 \text{ кН}, M = 8 \text{ кНМ}, f_{\text{ТР}} = 3/4.$

Задача S-10.16.

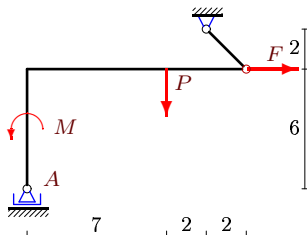
15



$P = 27 \text{ кН}, M = 175 \text{ кНМ}, f_{\text{ТР}} = 3/4.$

Задача S-10.17.

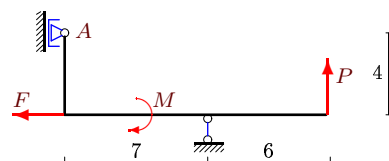
15



$P = 63 \text{ кН}, M = 63 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.18.

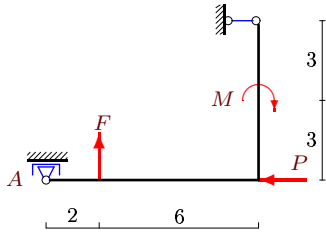
15



$P = 67 \text{ кН}, M = 51 \text{ кНМ}, f_{\text{ТР}} = 1/5.$

Задача S-10.19.

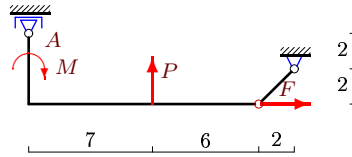
15



$P = 1 \text{ кН}, M = 30 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.20.

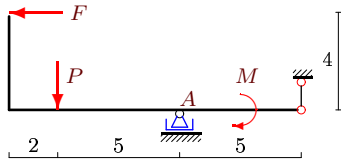
15



$P = 1457 \text{ кН}, M = 2914 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.21.

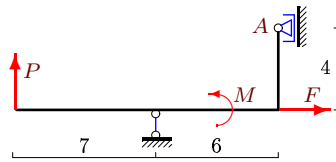
15



$P = 47 \text{ кН}, M = 101 \text{ кНМ}, f_{\text{ТР}} = 4/5.$

Задача S-10.22.

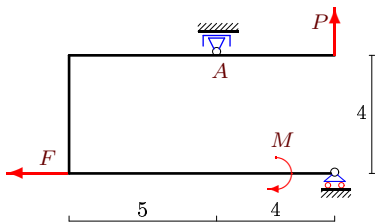
15



$P = 7 \text{ кН}, M = 13 \text{ кНМ}, f_{\text{ТР}} = 1/3.$

Задача S-10.23.

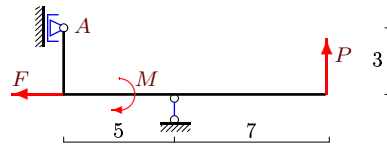
15



$P = 13 \text{ кН}, M = 200 \text{ кНМ}, f_{\text{ТР}} = 2/3.$

Задача S-10.24.

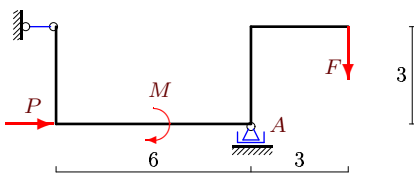
15



$P = 48 \text{ кН}, M = 37 \text{ кНМ}, f_{\text{ТР}} = 1/6.$

Задача S-10.25.

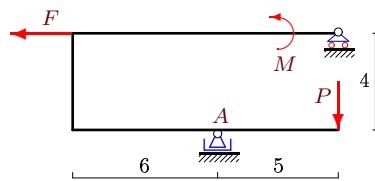
15



$P = 42 \text{ кН}, M = 105 \text{ кНМ}, f_{\text{ТР}} = 3/4.$

Задача S-10.26.

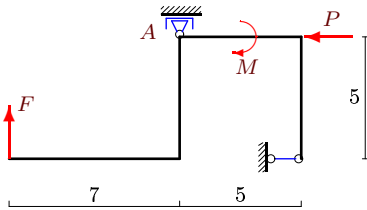
15



$P = 3 \text{ кН}, M = 64 \text{ кНМ}, f_{\text{ТР}} = 3/4.$

Задача S-10.27.

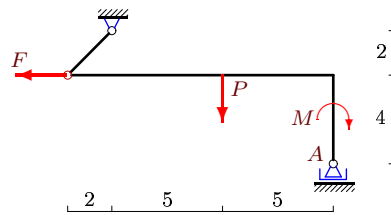
15



$P = 1113 \text{ кН}, M = 4929 \text{ кНМ}, f_{\text{ТР}} = 5/4.$

Задача S-10.28.

15



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

Ответы.**Равновесие рамы с трением**

16.02.2015

№	F
1	$-6 < F < 54$ кН
2	$54 < F < 374$ кН
3	$42 < F < 102$ кН
4	$60 < F < 260$ кН
5	$48 < F < 80$ кН
6	$-13 < F < 11$ кН
7	$-7 < F < 25$ кН
8	$F > 8$ кН
9	$-2 < F < 6$ кН
10	$-1 < F < 5$ кН
11	$15 < F < 85$ кН
12	$-57 < F < 363$ кН
13	$F > 12$ кН
14	$F > 5$ кН
15	$F > 4$ кН
16	$-21 < F < 75$ кН
17	$-12 < F < 56$ кН
18	$65 < F < 135$ кН
19	$F > 6$ кН
20	$-423 < F < 1209$ кН
21	$-36 < F < 164$ кН
22	$6 < F < 18$ кН
23	$-20 < F < 100$ кН
24	$78 < F < 138$ кН
25	$4 < F < 28$ кН
26	$-6 < F < 24$ кН
27	$48 < F < 848$ кН
28	$-7 < F < 25$ кН

S-10 файл o10s15A