

## Система с односторонней связью

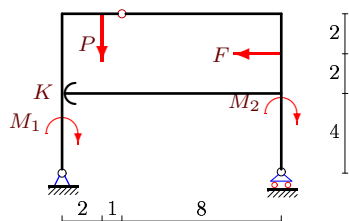
Рама, состоящая из двух частей, содержит одностороннюю связь (гладкая опора в точке  $K$ ). Размеры на рисунке даны в метрах. Для каких значений силы  $F$  система находится в положении равновесия?

Кирсанов М.Н. Теоретическая механика. Сборник задач – М.: Инфра-М, 2014. — 430 с. ISBN 978-5-16-010026-5 (с.82)

Кирсанов М.Н. Решения задач по теоретической механике. – М.: Инфра-М, 2015. — 216 с. ISBN 978-5-16-010558-1 (с.44)

**Задача S-37.1.**

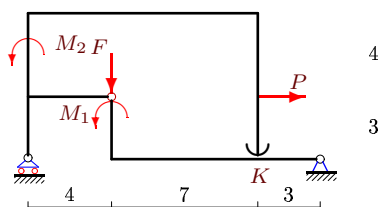
11



$$P = 35 \text{ кН}, M_1 = 3 \text{ кНм}, M_2 = 8 \text{ кНм}.$$

**Задача S-37.2.**

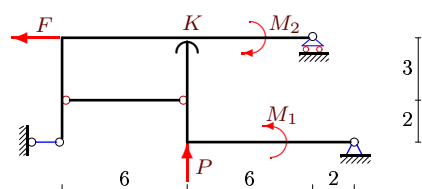
11



$$P = 30 \text{ кН}, M_1 = 40 \text{ кНм}, M_2 = 16 \text{ кНм}.$$

**Задача S-37.3.**

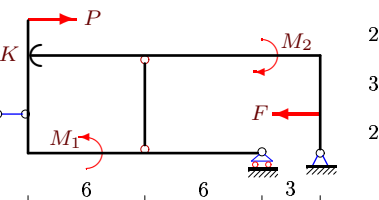
11



$$P = 5 \text{ кН}, M_1 = M_2 = 10 \text{ кНм}.$$

**Задача S-37.4.**

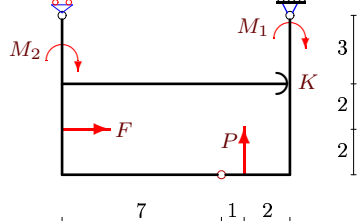
11



$$P = 4 \text{ кН}, M_1 = 6 \text{ кНм}, M_2 = 9 \text{ кНм}.$$

**Задача S-37.5.**

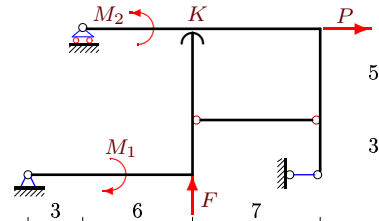
11



$$P = 55 \text{ кН}, M_1 = 3 \text{ кНм}, M_2 = 7 \text{ кНм}.$$

**Задача S-37.6.**

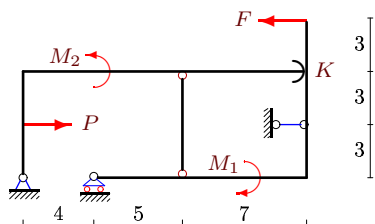
11



$$P = 9 \text{ кН}, M_1 = M_2 = 14 \text{ кНм}.$$

**Задача S-37.7.**

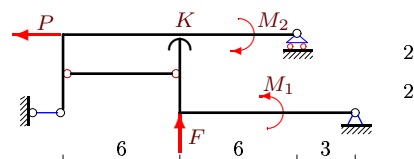
11



$$P = 54 \text{ кН}, M_1 = 25 \text{ кНм}, M_2 = 45 \text{ кНм}.$$

**Задача S-37.8.**

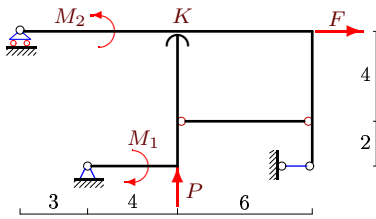
11



$$P = 9 \text{ кН}, M_1 = M_2 = 26 \text{ кНм}.$$

Задача S-37.9.

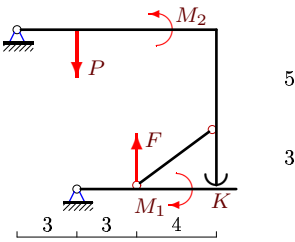
11



$P = 6 \text{ кН}, M_1 = M_2 = 25 \text{ кНм}.$

Задача S-37.10.

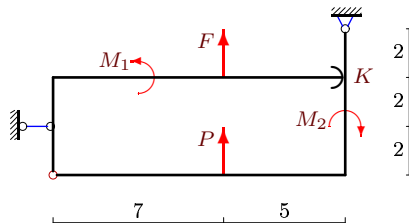
11



$P = 50 \text{ кН}, M_1 = 9 \text{ кНм}, M_2 = 50 \text{ кНм}.$

Задача S-37.11.

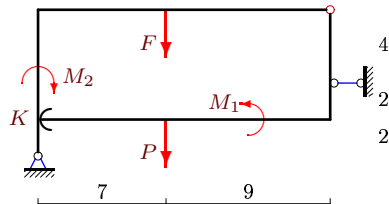
11



$P = 9 \text{ кН}, M_1 = 6 \text{ кНм}, M_2 = 18 \text{ кНм}.$

Задача S-37.12.

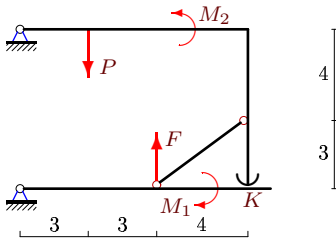
11



$P = 7 \text{ кН}, M_1 = 6 \text{ кНм}, M_2 = 12 \text{ кНм}.$

Задача S-37.13.

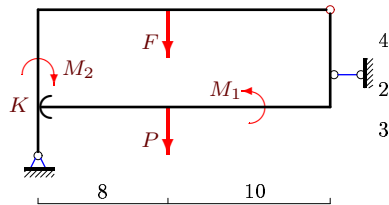
11



$P = 46 \text{ кН}, M_1 = 18 \text{ кНм}, M_2 = 46 \text{ кНм}.$

Задача S-37.14.

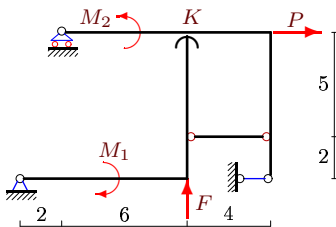
11



$P = 32 \text{ кН}, M_1 = 20 \text{ кНм}, M_2 = 45 \text{ кНм}.$

Задача S-37.15.

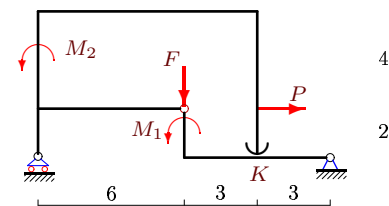
11



$P = 8 \text{ кН}, M_1 = M_2 = 28 \text{ кНм}.$

Задача S-37.16.

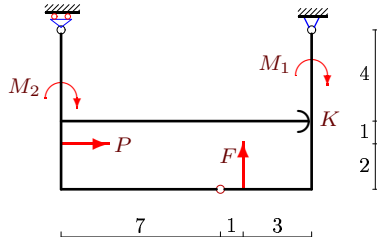
11



$P = 3 \text{ кН}, M_1 = 6 \text{ кНм}, M_2 = 6 \text{ кНм}.$

Задача S-37.17.

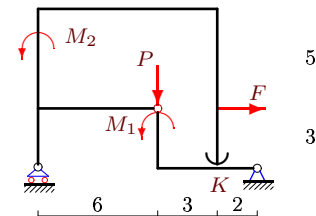
11



$P = 7 \text{ кН}, M_1 = 8 \text{ кНм}, M_2 = 14 \text{ кНм}.$

Задача S-37.18.

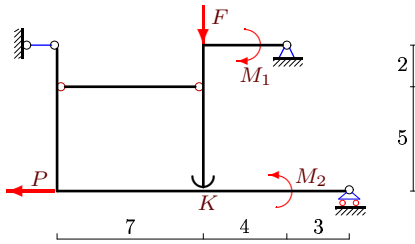
11



$P = 20 \text{ кН}, M_1 = 35 \text{ кНм}, M_2 = 42 \text{ кНм}.$

**Задача S-37.19.**

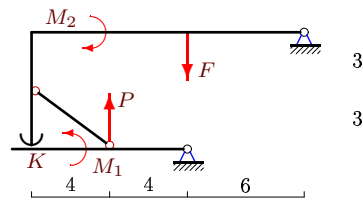
11



$P = 4 \text{ кН}, M_1 = M_2 = 32 \text{ кНм}.$

**Задача S-37.20.**

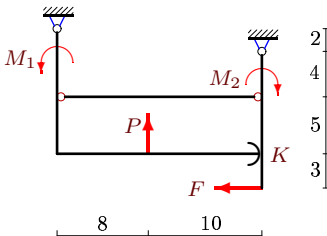
11



$P = 3 \text{ кН}, M_1 = 2 \text{ кНм}, M_2 = 9 \text{ кНм}.$

**Задача S-37.21.**

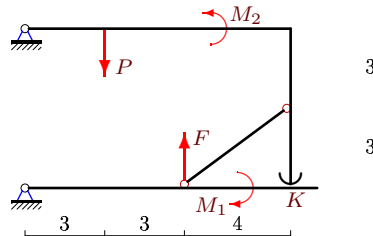
11



$P = 36 \text{ кН}, M_1 = 9 \text{ кНм}, M_2 = 6 \text{ кНм}.$

**Задача S-37.22.**

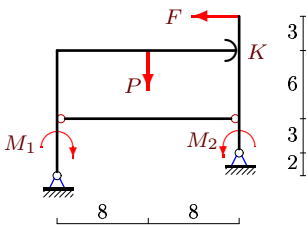
11



$P = 14 \text{ кН}, M_1 = 3 \text{ кНм}, M_2 = 7 \text{ кНм}.$

**Задача S-37.23.**

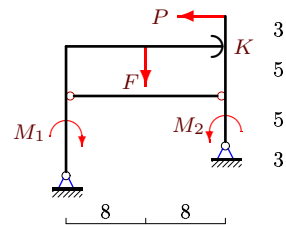
11



$P = 60 \text{ кН}, M_1 = 35 \text{ кНм}, M_2 = 21 \text{ кНм}.$

**Задача S-37.24.**

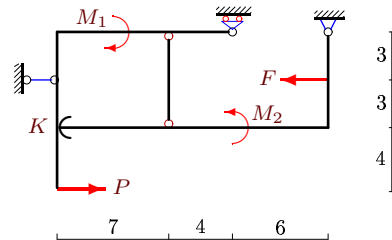
11



$P = 10 \text{ кН}, M_1 = 8 \text{ кНм}, M_2 = 5 \text{ кНм}.$

**Задача S-37.25.**

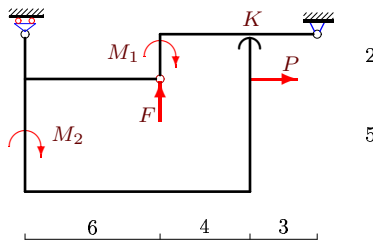
11



$P = 6 \text{ кН}, M_1 = 8 \text{ кНм}, M_2 = 20 \text{ кНм}.$

**Задача S-37.26.**

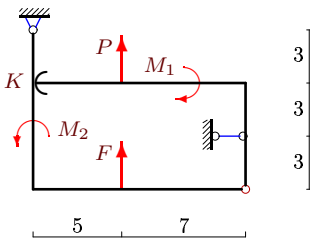
11



$P = 14 \text{ кН}, M_1 = 77 \text{ кНм}, M_2 = 66 \text{ кНм}.$

**Задача S-37.27.**

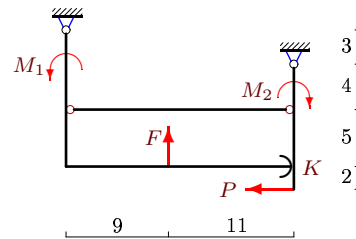
11



$P = 5 \text{ кН}, M_1 = 6 \text{ кНм}, M_2 = 18 \text{ кНм}.$

**Задача S-37.28.**

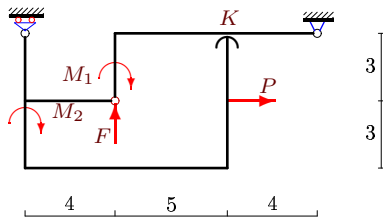
11



$P = 36 \text{ кН}, M_1 = 7 \text{ кНм}, M_2 = 4 \text{ кНм}.$

Задача S-37.29.

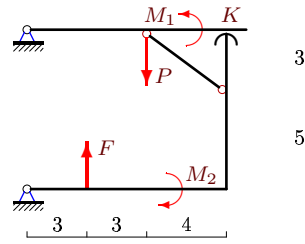
11



$P = 9 \text{ кН}, M_1 = 9 \text{ кНм}, M_2 = 4 \text{ кНм}.$

Задача S-37.30.

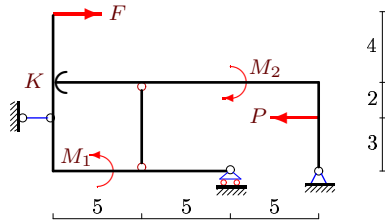
11



$P = 9 \text{ кН}, M_1 = 18 \text{ кНм}, M_2 = 50 \text{ кНм}.$

Задача S-37.31.

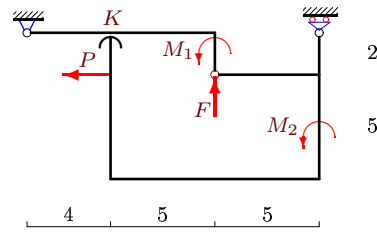
11



$P = 12 \text{ кН}, M_1 = 5 \text{ кНм}, M_2 = 10 \text{ кНм}.$

Задача S-37.32.

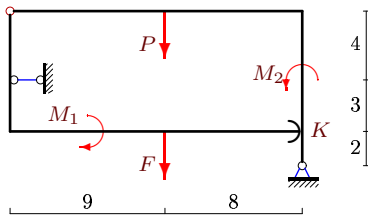
11



$P = 36 \text{ кН}, M_1 = 81 \text{ кНм}, M_2 = 45 \text{ кНм}.$

Задача S-37.33.

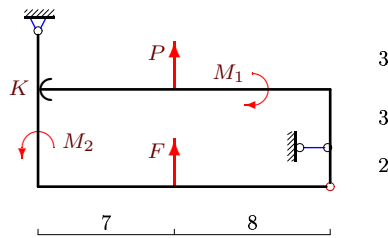
11



$P = 13 \text{ кН}, M_1 = 20 \text{ кНм}, M_2 = 45 \text{ кНм}.$

Задача S-37.34.

11



$P = 7 \text{ кН}, M_1 = 2 \text{ кНм}, M_2 = 8 \text{ кНм}.$

**Ответы.****Система с односторонней связью**

16.02.2015

| №  | $F$         |
|----|-------------|
| 1  | $F > 8$ кН  |
| 2  | $F > 9$ кН  |
| 3  | $F < 8$ кН  |
| 4  | $F < 15$ кН |
| 5  | $F > 14$ кН |
| 6  | $F > 8$ кН  |
| 7  | $F > 15$ кН |
| 8  | $F > 4$ кН  |
| 9  | $F < 4$ кН  |
| 10 | $F > 9$ кН  |
| 11 | $F < 5$ кН  |
| 12 | $F > 2$ кН  |
| 13 | $F > 9$ кН  |
| 14 | $F > 18$ кН |
| 15 | $F > 7$ кН  |
| 16 | $F > 1$ кН  |
| 17 | $F < 19$ кН |
| 18 | $F < 12$ кН |
| 19 | $F > 7$ кН  |
| 20 | $F < 9$ кН  |
| 21 | $F > 16$ кН |
| 22 | $F > 3$ кН  |
| 23 | $F > 24$ кН |
| 24 | $F < 26$ кН |
| 25 | $F < 35$ кН |
| 26 | $F > 4$ кН  |
| 27 | $F > 9$ кН  |
| 28 | $F < 77$ кН |
| 29 | $F > 3$ кН  |
| 30 | $F < 50$ кН |
| 31 | $F > 3$ кН  |
| 32 | $F > 8$ кН  |
| 33 | $F < 32$ кН |
| 34 | $F > 17$ кН |