

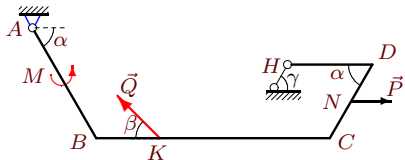
Определение реакций опор рамы

Тяжелая однородная рама расположена в вертикальной плоскости и опирается на неподвижный шарнир A и наклонный невесомый стержень H . К раме приложены горизонтальная сила P , наклонная сила Q и момент M . Учитывая погонный вес рамы ρ , найти реакции опор.

Кирсанов М.Н. **Решебник. Теоретическая механика** / Под ред. А. И. Кириллова. – М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.31.)

Задача S-4.1.

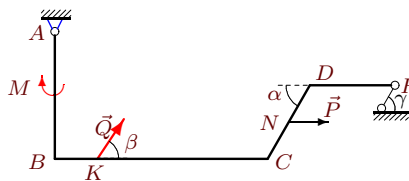
Белоненко Данила



$\rho = 1$ кН/м, $P = 5$ кН, $Q = 19$ кН,
 $M = 30$ кНм, $\alpha = 60^\circ$, $\beta = 30^\circ$, $\gamma = 30^\circ$,
 $AB = 6$ м, $BC = 11$ м, $CD = 4$ м,
 $DH = 4$ м, $BK = 3$ м, $CN = 2$ м.

Задача S-4.2.

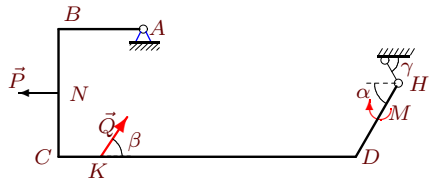
Богданович Михаил



$\rho = 2$ кН/м, $P = 8$ кН, $Q = 32$ кН,
 $M = 20$ кНм, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 6$ м, $BC = 10$ м, $CD = 4$ м,
 $DH = 4$ м, $BK = 2$ м, $CN = 2$ м.

Задача S-4.3.

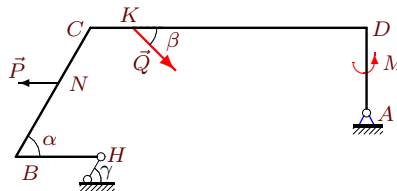
Бокарева Анастасия



$\rho = 2$ кН/м, $P = 8$ кН, $Q = 29$ кН,
 $M = 20$ кНм, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 4$ м, $BC = 6$ м, $CD = 14$ м,
 $DH = 4$ м, $CK = 2$ м, $CN = 3$ м.

Задача S-4.4.

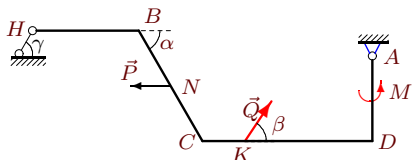
Воронова Екатерина



$\rho = 3$ кН/м, $P = 7$ кН, $Q = 13$ кН,
 $M = 70$ кНм, $\alpha = 60^\circ$, $\beta = 30^\circ$, $\gamma = 60^\circ$,
 $HB = 4$ м, $BC = 7$ м, $CD = 13$ м,
 $DA = 4$ м, $CK = 2$ м, $CN = 3$ м.

Задача S-4.5.

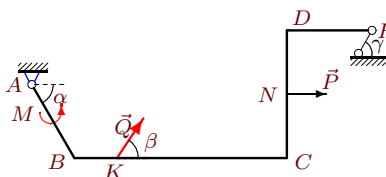
Галушко Роман



$\rho = 3$ кН/м, $P = 9$ кН, $Q = 15$ кН,
 $M = 70$ кНм, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 60^\circ$,
 $HB = 5$ м, $BC = 6$ м, $CD = 8$ м,
 $DA = 4$ м, $CK = 2$ м, $CN = 3$ м.

Задача S-4.6.

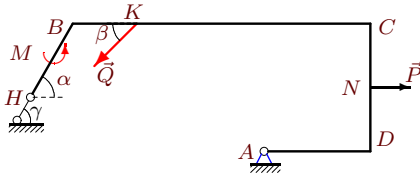
Григорьев Михаил



$\rho = 1$ кН/м, $P = 7$ кН, $Q = 15$ кН,
 $M = 30$ кНм, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 30^\circ$,
 $AB = 4$ м, $BC = 10$ м, $CD = 6$ м,
 $DH = 4$ м, $BK = 2$ м, $CN = 3$ м.

Задача S-4.7.

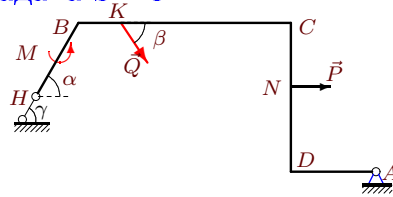
Журавлев Илья



$\rho = 3 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 13 \text{ кН}$,
 $M = 70 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 14 \text{ м}$, $CD = 6 \text{ м}$,
 $DA = 5 \text{ м}$, $BK = 3 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.8.

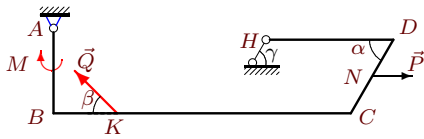
Камаева Элина



$\rho = 3 \text{ кН/м}$, $P = 9 \text{ кН}$, $Q = 13 \text{ кН}$,
 $M = 70 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 10 \text{ м}$, $CD = 7 \text{ м}$,
 $DA = 4 \text{ м}$, $BK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.9.

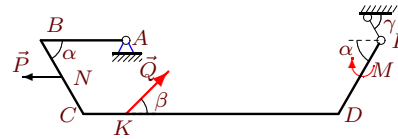
Козлов Анатолий



$\rho = 1 \text{ кН/м}$, $P = 5 \text{ кН}$, $Q = 31 \text{ кН}$,
 $M = 15 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 30^\circ$, $\gamma = 30^\circ$,
 $AB = 4 \text{ м}$, $BC = 14 \text{ м}$, $CD = 4 \text{ м}$,
 $DH = 6 \text{ м}$, $BK = 3 \text{ м}$, $CN = 2 \text{ м}$.

Задача S-4.10.

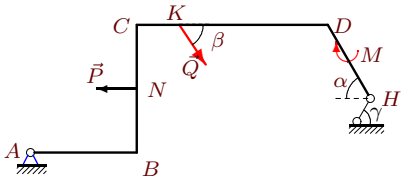
Корляков Андрей



$\rho = 2 \text{ кН/м}$, $P = 6 \text{ кН}$, $Q = 22 \text{ кН}$,
 $M = 20 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 30^\circ$, $\gamma = 45^\circ$,
 $AB = 4 \text{ м}$, $BC = 4 \text{ м}$, $CD = 12 \text{ м}$,
 $DH = 4 \text{ м}$, $CK = 2 \text{ м}$, $CN = 2 \text{ м}$.

Задача S-4.11.

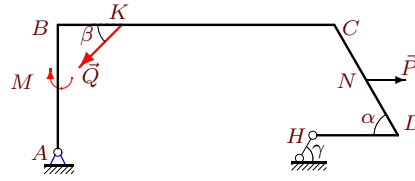
Магид Сергей



$\rho = 2 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 35 \text{ кН}$,
 $M = 20 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 5 \text{ м}$, $BC = 6 \text{ м}$, $CD = 9 \text{ м}$,
 $DH = 4 \text{ м}$, $CK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.12.

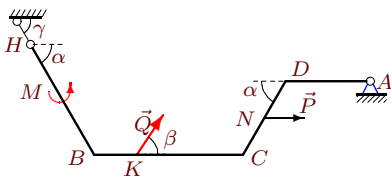
Манаенков Кирилл



$\rho = 2 \text{ кН/м}$, $P = 7 \text{ кН}$, $Q = 28 \text{ кН}$,
 $M = 20 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 45^\circ$,
 $AB = 6 \text{ м}$, $BC = 13 \text{ м}$, $CD = 6 \text{ м}$,
 $DH = 4 \text{ м}$, $BK = 3 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.13.

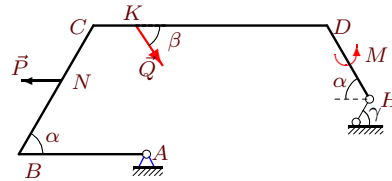
Мацко Ксения



$\rho = 3 \text{ кН/м}$, $P = 9 \text{ кН}$, $Q = 19 \text{ кН}$,
 $M = 70 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 60^\circ$,
 $HB = 6 \text{ м}$, $BC = 7 \text{ м}$, $CD = 4 \text{ м}$,
 $DA = 4 \text{ м}$, $BK = 2 \text{ м}$, $CN = 2 \text{ м}$.

Задача S-4.14.

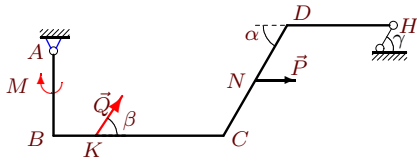
Моисеева Анастасия



$\rho = 2 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 21 \text{ кН}$,
 $M = 50 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 6 \text{ м}$, $BC = 7 \text{ м}$, $CD = 11 \text{ м}$,
 $DH = 4 \text{ м}$, $CK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.15.

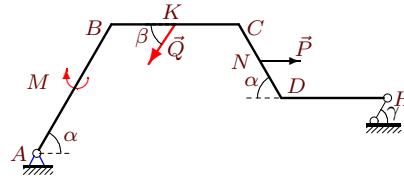
Новиков Алексей



$\rho = 2 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 28 \text{ кН}$,
 $M = 20 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 4 \text{ м}$, $BC = 8 \text{ м}$, $CD = 6 \text{ м}$,
 $DH = 5 \text{ м}$, $BK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.16.

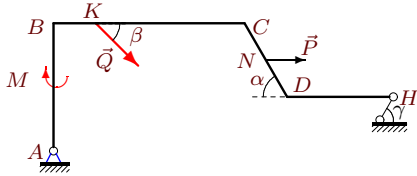
Обвинников Егор



$\rho = 2 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 25 \text{ кН}$,
 $M = 20 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 45^\circ$,
 $AB = 7 \text{ м}$, $BC = 6 \text{ м}$, $CD = 4 \text{ м}$,
 $DH = 5 \text{ м}$, $BK = 3 \text{ м}$, $CN = 2 \text{ м}$.

Задача S-4.17.

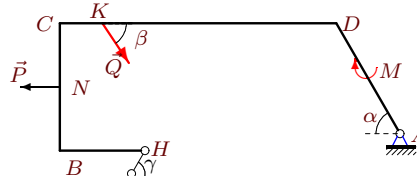
Оралбеков Кирилл



$\rho = 1 \text{ кН/м}$, $P = 6 \text{ кН}$, $Q = 35 \text{ кН}$,
 $M = 15 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 30^\circ$,
 $AB = 6 \text{ м}$, $BC = 9 \text{ м}$, $CD = 4 \text{ м}$,
 $DH = 5 \text{ м}$, $BK = 2 \text{ м}$, $CN = 2 \text{ м}$.

Задача S-4.18.

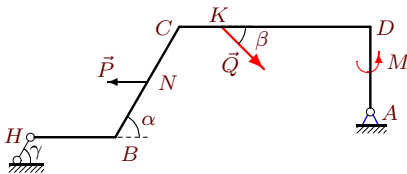
Палагицкий Сергей



$\rho = 3 \text{ кН/м}$, $P = 9 \text{ кН}$, $Q = 28 \text{ кН}$,
 $M = 25 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 60^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 6 \text{ м}$, $CD = 13 \text{ м}$,
 $DA = 6 \text{ м}$, $CK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.19.

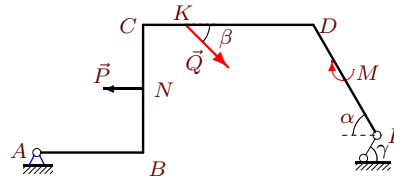
Пушкина Мария



$\rho = 3 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 11 \text{ кН}$,
 $M = 70 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 6 \text{ м}$, $CD = 9 \text{ м}$,
 $DA = 4 \text{ м}$, $CK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.20.

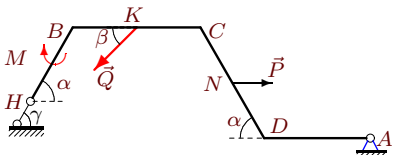
Раздобарин Борис



$\rho = 1 \text{ кН/м}$, $P = 6 \text{ кН}$, $Q = 27 \text{ кН}$,
 $M = 15 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 30^\circ$,
 $AB = 5 \text{ м}$, $BC = 6 \text{ м}$, $CD = 8 \text{ м}$,
 $DH = 6 \text{ м}$, $CK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.21.

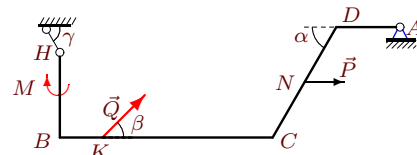
Серый Александр



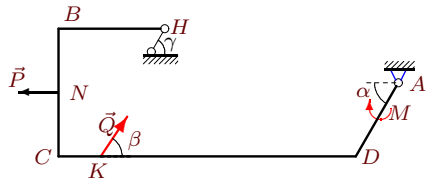
$\rho = 3 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 25 \text{ кН}$,
 $M = 25 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 6 \text{ м}$, $CD = 6 \text{ м}$,
 $DA = 5 \text{ м}$, $BK = 3 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.22.

Соловьев Роман



$\rho = 3 \text{ кН/м}$, $P = 8 \text{ кН}$, $Q = 35 \text{ кН}$,
 $M = 25 \text{ кНм}$, $\alpha = 60^\circ$, $\beta = 45^\circ$, $\gamma = 60^\circ$,
 $HB = 4 \text{ м}$, $BC = 10 \text{ м}$, $CD = 6 \text{ м}$,
 $DA = 3 \text{ м}$, $BK = 2 \text{ м}$, $CN = 3 \text{ м}$.

Задача S-4.23.*Шилина Елизавета*

$$\rho = 3 \text{ кН/м}, P = 9 \text{ кН}, Q = 31 \text{ кН},$$

$$M = 25 \text{ кНм}, \alpha = 60^\circ, \beta = 60^\circ, \gamma = 60^\circ,$$

$$HB = 5 \text{ м}, BC = 6 \text{ м}, CD = 14 \text{ м},$$

$$DA = 4 \text{ м}, CK = 2 \text{ м}, CN = 3 \text{ м}.$$