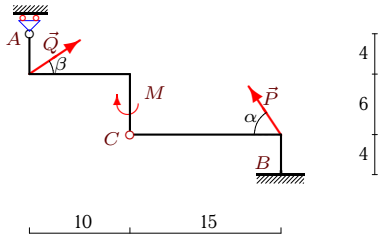
Расчет составной конструкции

Рама состоит из двух частей, соединенных шарниром или скользящей заделкой. Дан погонный вес рамы ρ, размеры в метрах и нагрузки. Найти реакции опор.

Кирсанов М.Н. **Решебник. Теоретическая механика** с. 54.

Вариант 1

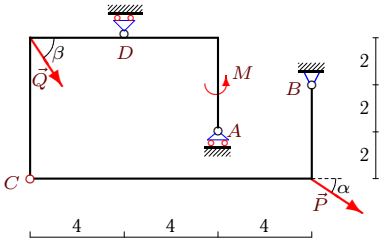
C8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 5$ кН/м, $M = 130$ кНм.

Вариант 2

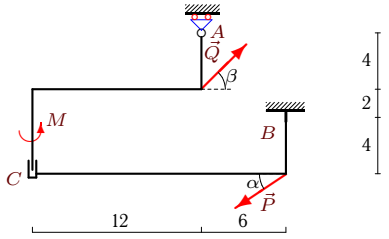
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 3$ кН/м, $M = 110$ кНм.

Вариант 3

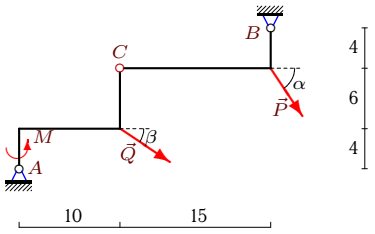
C8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 110$ кНм.

Вариант 4

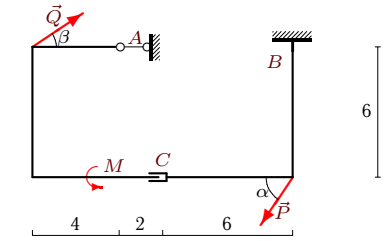
C8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 1$ кН/м, $M = 50$ кНм.

Вариант 5

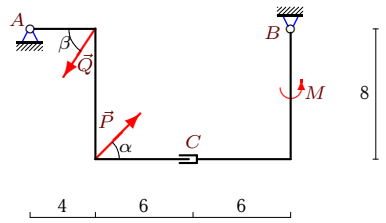
C8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 6$ кН/м, $M = 100$ кНм.

Вариант 6

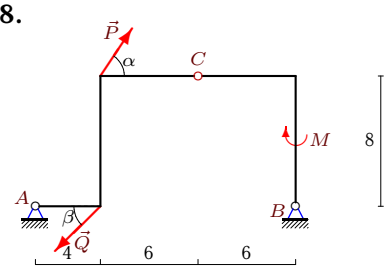
C8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 70$ кНм.

Вариант 7

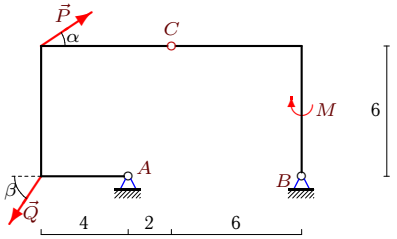
C8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 50$ кНм.

Вариант 8

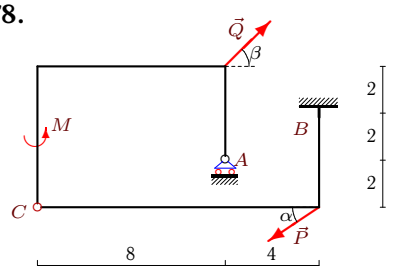
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 1$ кН/м, $M = 60$ кНм.

Вариант 9

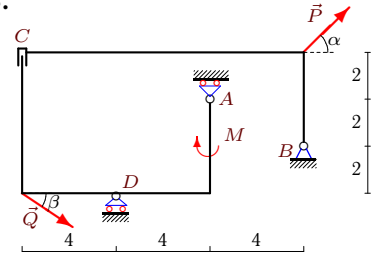
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 120$ кНм.

Вариант 10

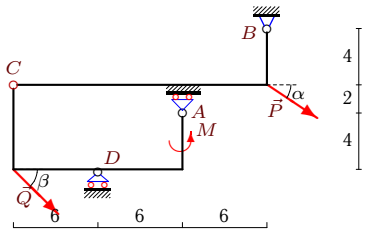
*C*8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 4$ кН/м, $M = 20$ кНм.

Вариант 11

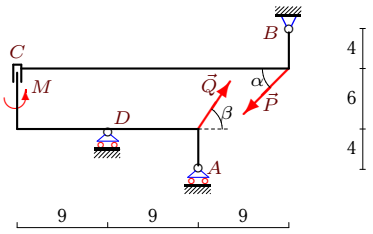
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 3$ кН/м, $M = 20$ кНм.

Вариант 12

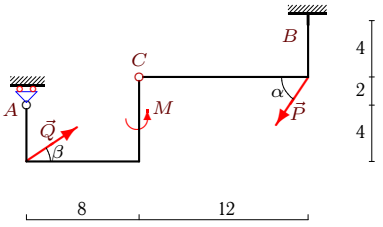
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 40$ кНм.

Вариант 13

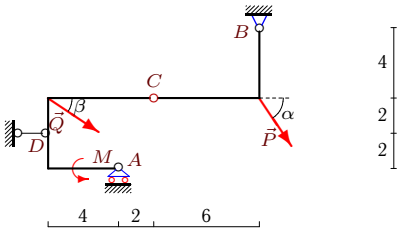
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 5$ кН/м, $M = 50$ кНм.

Вариант 14

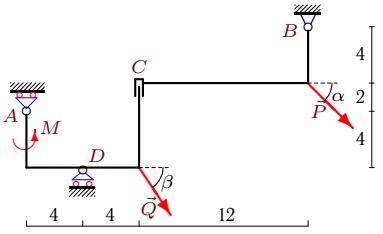
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 70$ кНм.

Вариант 15

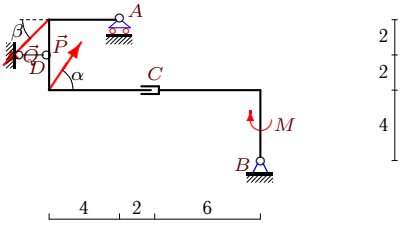
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 40$ кНм.

Вариант 16

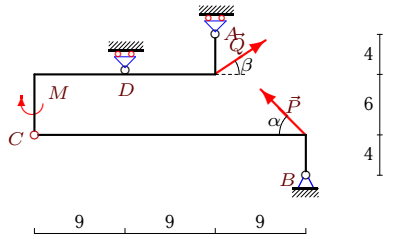
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 80$ кНм.

Вариант 17

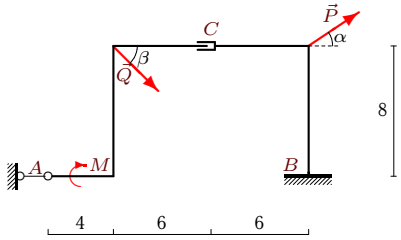
*C*8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 110$ кНм.

Вариант 18

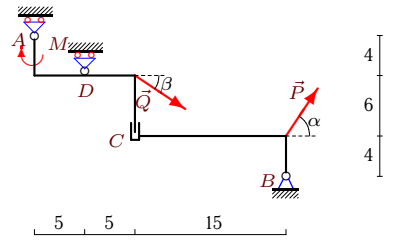
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 60$ кНм.

Вариант 19

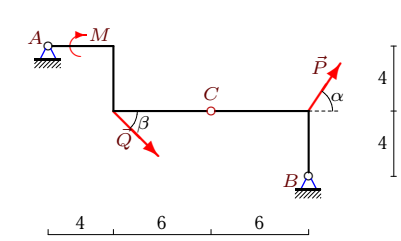
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 4$ кН/м, $M = 120$ кНм.

Вариант 20

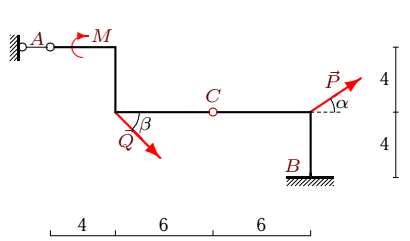
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 80$ кНм.

Вариант 21

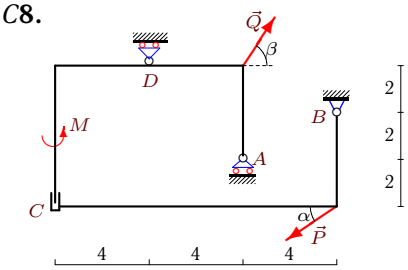
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 80$ кНм.

Вариант 22

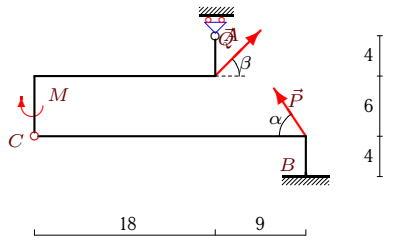
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 120$ кНм.

Вариант 23

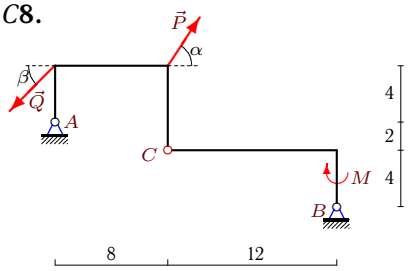
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 110$ кНм.

Вариант 24

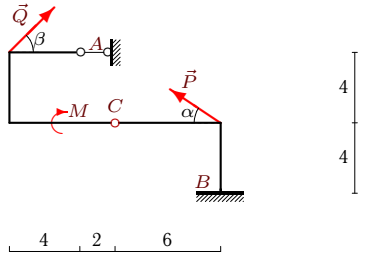
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 120$ кНм.

Вариант 25

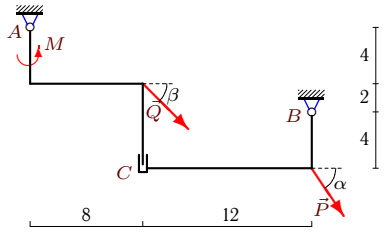
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 100$ кНм.

Вариант 26

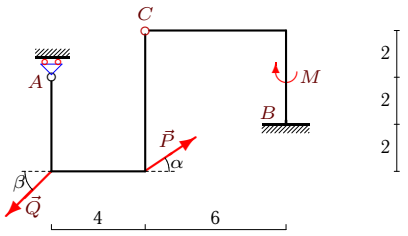
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 120$ кНм.

Вариант 27

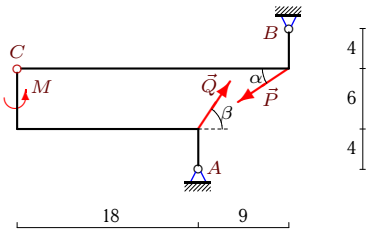
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 30$ кНм.

Вариант 28

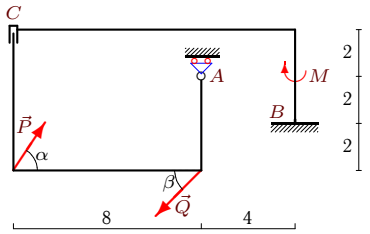
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 1$ кН/м, $M = 40$ кНм.

Вариант 29

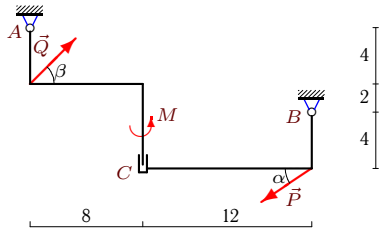
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 10$ кНм.

Вариант 30

*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 130$ кНм.

Ответы

	X_A	Y_A	X_B	Y_B	X_D	Y_D	M_B
1	—	1.41	−15.98	161.27	—	—	−1752.4
2	—	−60.04	−18.66	28.78	—	155.58	—
3	—	103.72	−2.3	147	—	—	−1785.5
4	30.7	60.28	−66.67	11.04	—	—	—
5	−25.98	—	10	170.32	—	—	−964
6	−7.43	67.23	0	14.96	—	—	—
7	24.33	1.41	−8.98	31.3	—	—	—
8	−4.83	27.49	6.17	12.83	—	—	—
9	—	17.93	−2.3	138.79	—	—	−894.66
10	—	−95.63	−87.32	28.64	—	197.63	—
11	—	−104.96	−54.27	41.94	—	238.3	—
12	—	−255.1	7.43	166.43	—	306.48	—
13	—	50.74	−15.98	121.58	—	—	−715.1
14	—	−64.04	195.06	168.36	−231.04	—	—
15	—	143.3	−77.43	106.43	—	−10.68	—
16	—	84.91	0	11.8	15.36	—	—
17	—	−27.18	−16.6	19.6	—	119.22	—
18	−28.28	—	−25.98	205.28	—	—	−1189.3
19	—	−16.96	−35.98	58.68	—	111.96	—
20	−19.36	28.36	−36	−3.64	—	—	—
21	114.93	—	−169.2	133.28	—	—	−2.94
22	—	−113.66	−1.34	69	—	168.34	—
23	—	47.54	−15.36	177.46	—	—	−3302.88
24	−420.47	159.99	435.82	−125.27	—	—	—
25	−23.21	—	20.9	76.72	—	—	−423.92
26	−28.26	71.36	−27.1	66.64	—	—	—
27	—	54.83	2.3	78.46	—	—	−239.95
28	−48.68	17.17	47.34	29.51	—	—	—
29	—	108.71	15.36	96	—	—	−594.16
30	−7.75	7.72	5.45	47	—	—	—