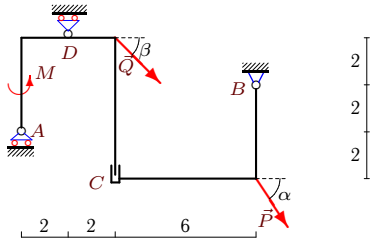
Расчет составной конструкции

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

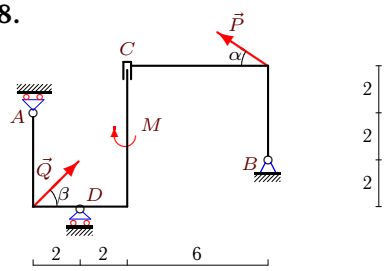
C8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 130$ кНм.

Вариант 2

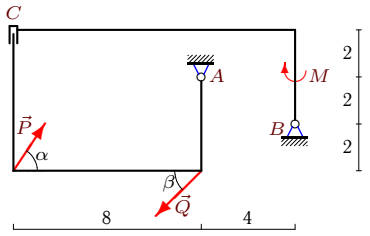
C8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 50$ кНм.

Вариант 3

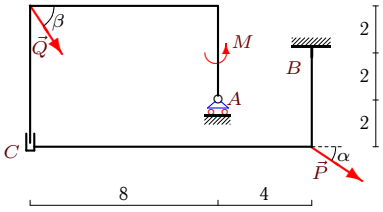
C8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 10$ кНм.

Вариант 4

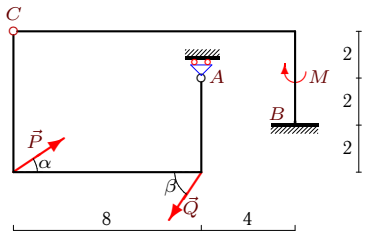
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 6$ кН/м, $M = 110$ кНм.

Вариант 5

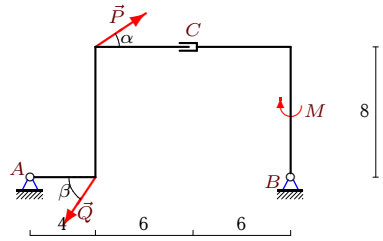
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 10$ кНм.

Вариант 6

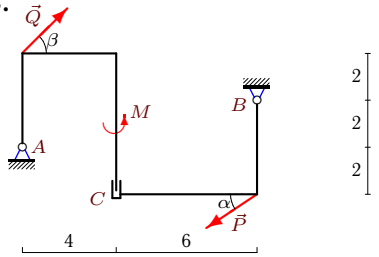
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 50$ кНм.

Вариант 7

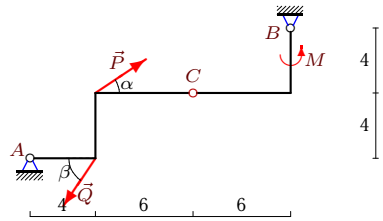
C8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 140$ кНм.

Вариант 8

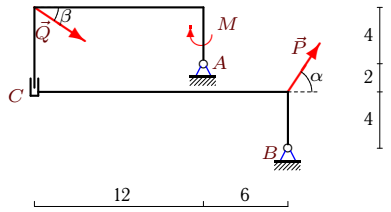
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 1$ кН/м, $M = 50$ кНм.

Вариант 9

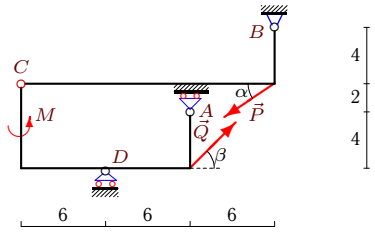
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 2$ кН/м, $M = 110$ кНм.

Вариант 10

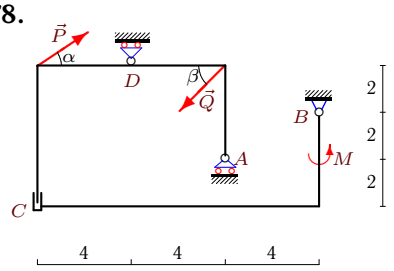
*C*8.



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

Вариант 11

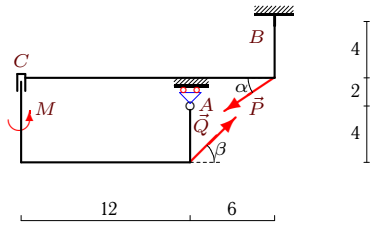
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 100$ кНм.

Вариант 12

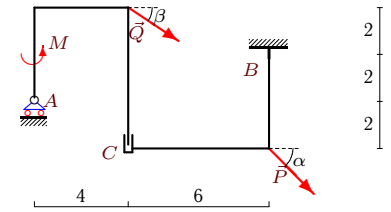
*C*8.



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

Вариант 13

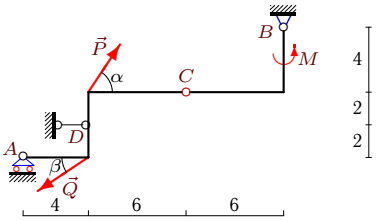
*C*8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 6$ кН/м, $M = 130$ кНм.

Вариант 14

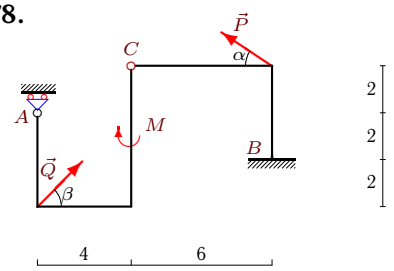
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 50$ кНм.

Вариант 15

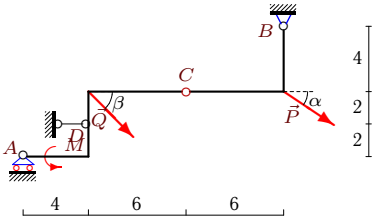
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 50$ кНм.

Вариант 16

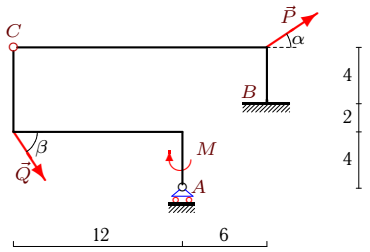
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 3$ кН/м, $M = 60$ кНм.

Вариант 17

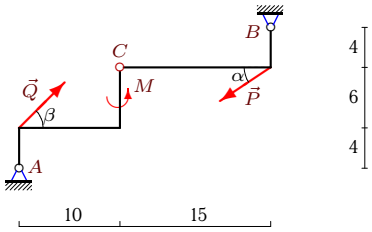
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 30$ кНм.

Вариант 18

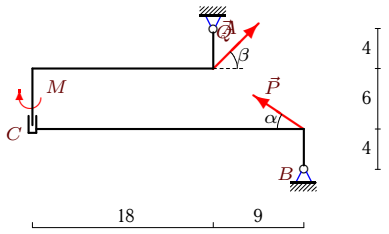
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 60$ кНм.

Вариант 19

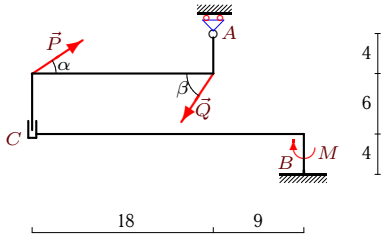
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 110$ кНм.

Вариант 20

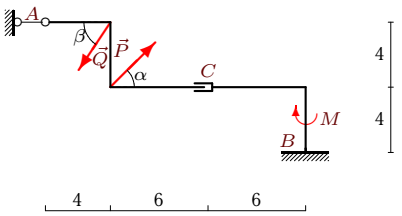
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 6$ кН/м, $M = 90$ кНм.

Вариант 21

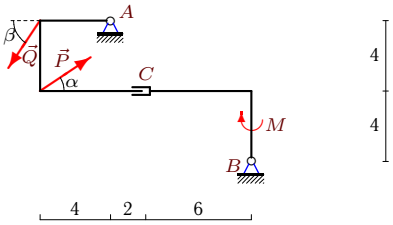
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 6$ кН/м, $M = 70$ кНм.

Вариант 22

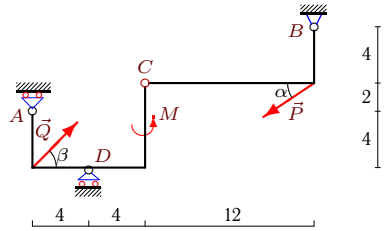
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 80$ кНм.

Вариант 23

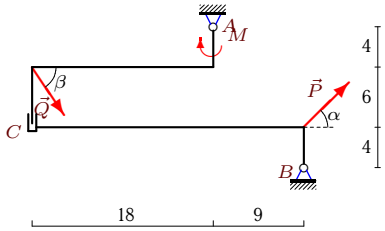
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 3$ кН/м, $M = 50$ кНм.

Вариант 24

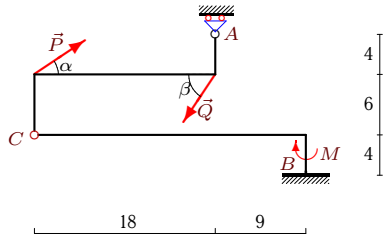
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 100$ кНм.

Вариант 25

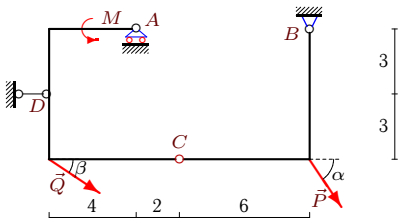
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 90$ кНм.

Вариант 26

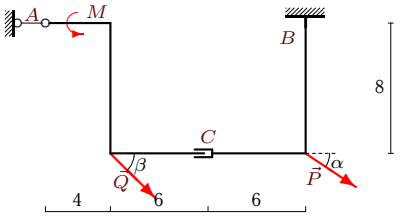
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 90$ кНм.

Вариант 27

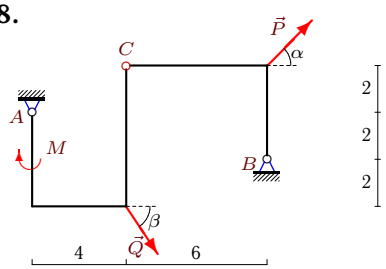
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 80$ кНм.

Вариант 28

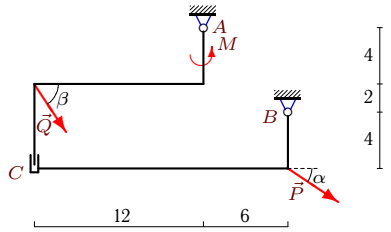
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 1$ кН/м, $M = 40$ кНм.

Вариант 29

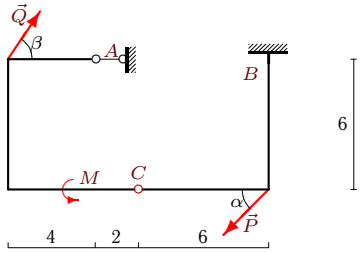
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 100$ кНм.

Вариант 30

*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 100$ кНм.

Ответы

	X_A	Y_A	X_B	Y_B	X_D	Y_D	M_B
1	—	62.29	−55.36	74.64	—	29.07	—
2	—	54.96	−2.3	25	—	−27.25	—
3	−6.92	36.71	22.27	32	—	—	—
4	—	125.32	−18.66	101	—	—	−1175.2
5	—	58.33	1.34	124	—	—	−883.3
6	1.34	29.79	0	46.54	—	—	—
7	24.25	−0.28	−26.55	35	—	—	—
8	−97.38	−28.16	98.72	64.48	—	—	—
9	63.7	59	−99.68	26.68	—	—	—
10	—	−95.08	−2.3	53.49	—	160.3	—
11	—	−62.87	2.3	64	—	148.15	—
12	—	103.72	−2.3	147	—	—	−2044.92
13	—	114	−87.32	95.36	—	—	36.5
14	—	−4.99	93	74.67	−77.02	—	—
15	—	31.64	−2.3	45.07	—	—	−141.23
16	—	15.05	96.36	100.24	−150.62	—	—
17	—	47.5	−18.66	184.82	—	—	−2172.13
18	−5.26	−1.57	2.96	27.29	—	—	—
19	70	27.72	−72.3	47	—	—	—
20	—	180.32	1.34	186	—	—	−3640.4
21	−7.43	—	0	162.2	—	—	−1374.05
22	1.34	52.81	0	7.5	—	—	—
23	—	1.87	−2.3	44.23	—	42.6	—
24	124.32	116.62	−201.75	19.57	—	—	—
25	—	81.87	1.34	225.45	—	—	−3639.92
26	—	142.79	−70.79	−26.47	34.8	—	—
27	−28.28	—	−25.98	235.28	—	—	−2197.53
28	−19.28	38.86	−58.14	3.34	—	—	—
29	155.75	61.32	−174.4	49	—	—	—
30	−20.62	—	28.05	121.8	—	—	−37.98