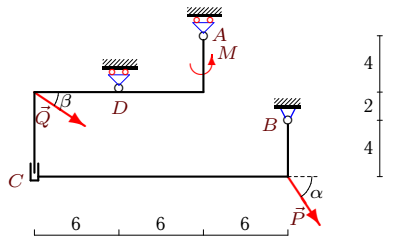
Расчет составной конструкции

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

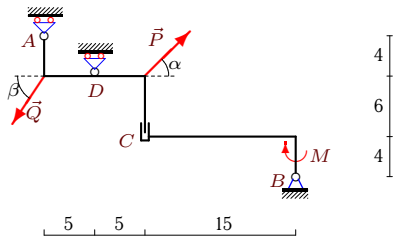
C8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 4$ кН/м, $M = 100$ кНм.

Вариант 2

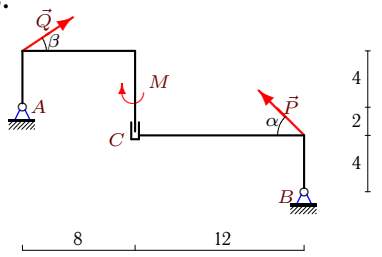
C8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 110$ кНм.

Вариант 3

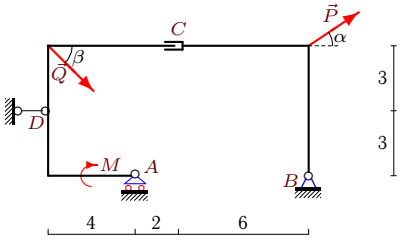
C8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 2$ кН/м, $M = 140$ кНм.

Вариант 4

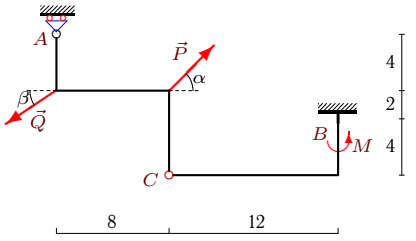
C8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 70$ кНм.

Вариант 5

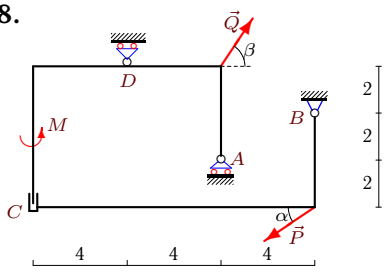
C8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 5$ кН/м, $M = 110$ кНм.

Вариант 6

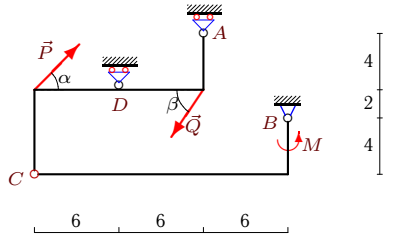
C8.



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

Вариант 7

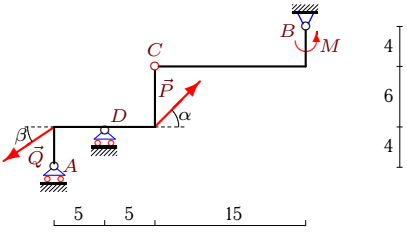
C8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 3$ кН/м, $M = 90$ кНм.

Вариант 8

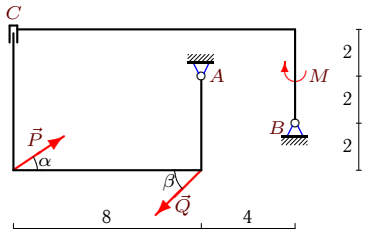
C8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 40$ кНм.

Вариант 9

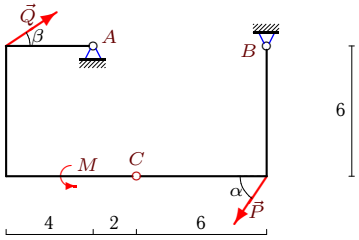
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 10$ кНм.

Вариант 10

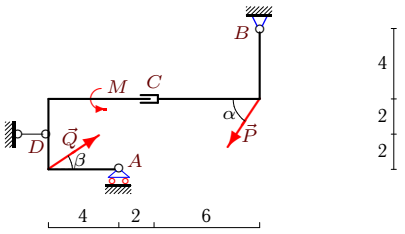
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 1$ кН/м, $M = 100$ кНм.

Вариант 11

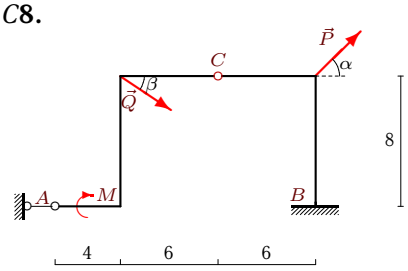
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 4$ кН/м, $M = 80$ кНм.

Вариант 12

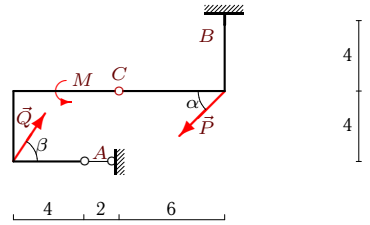
*C*8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 5$ кН/м, $M = 60$ кНм.

Вариант 13

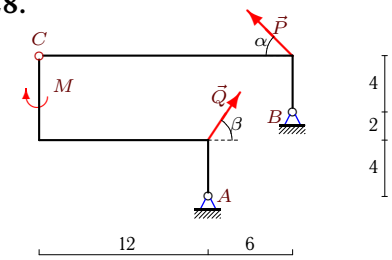
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 80$ кНм.

Вариант 14

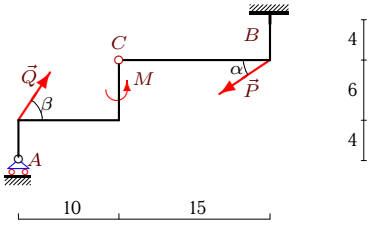
*C*8.



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

Вариант 15

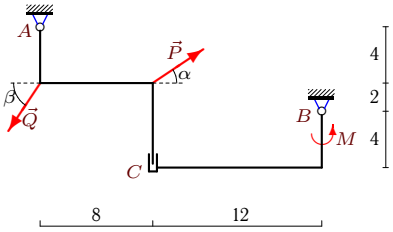
*C*8.



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

Вариант 16

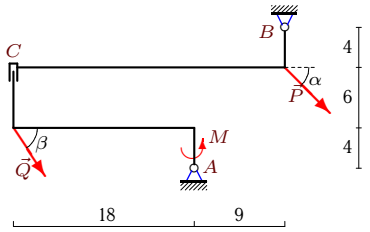
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 110$ кНм.

Вариант 17

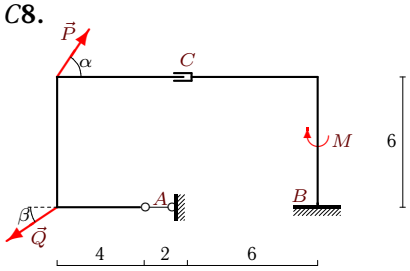
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 30$ кНм.

Вариант 18

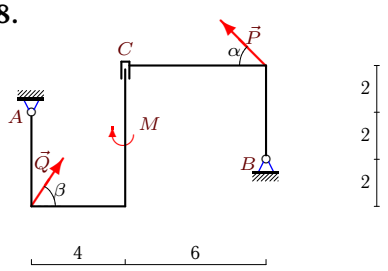
*C*8.



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

Вариант 19

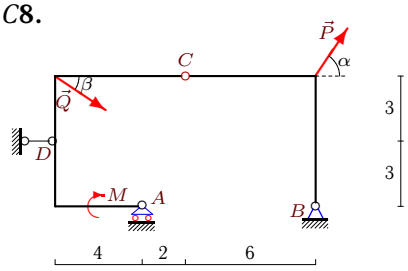
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 50$ кНм.

Вариант 20

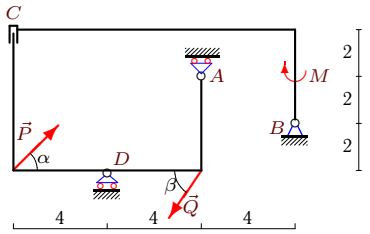
*C*8.



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

Вариант 21

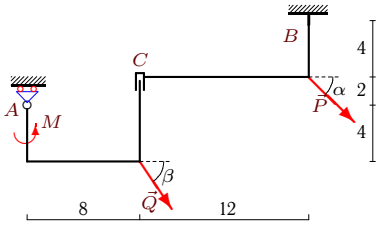
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 10$ кНм.

Вариант 22

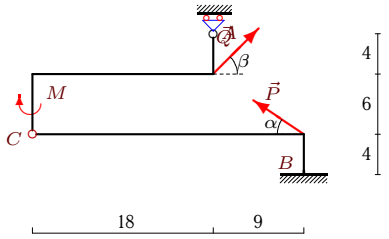
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 6$ кН/м, $M = 40$ кНм.

Вариант 23

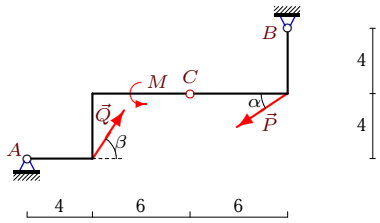
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 110$ кНм.

Вариант 24

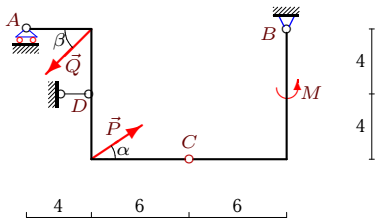
*C*8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 1$ кН/м, $M = 70$ кНм.

Вариант 25

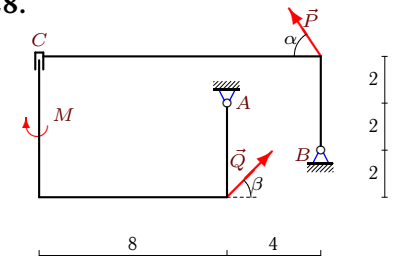
*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 3$ кН/м, $M = 70$ кНм.

Вариант 26

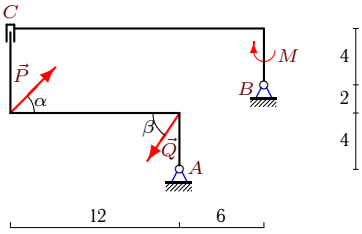
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 30$ кНм.

Вариант 27

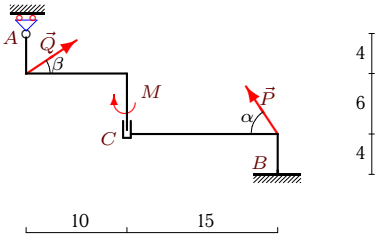
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 2$ кН/м, $M = 20$ кНм.

Вариант 28

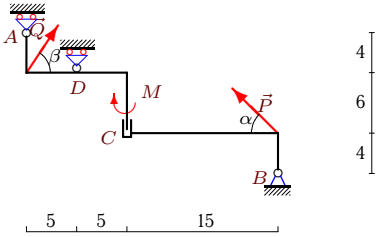
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 6$ кН/м, $M = 130$ кНм.

Вариант 29

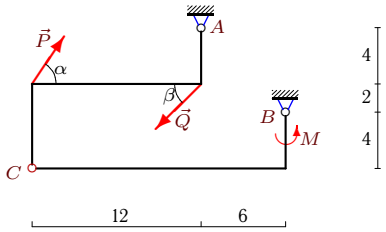
*C*8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 130$ кНм.

Вариант 30

*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 90$ кНм.

Ответы

	X_A	Y_A	X_B	Y_B	X_D	Y_D	M_B
1	—	−145.67	−35.98	105.32	—	248.67	—
2	—	148.2	−7.43	76	—	−50	—
3	−89.03	6	72.43	−3.36	—	—	—
4	—	95.58	−25.98	29.7	−28.28	—	—
5	—	82.45	16.6	82.2	—	—	−429.86
6	—	−113.66	−1.34	69	—	168.34	—
7	—	70.82	−7.43	32.35	—	47.02	—
8	—	18.69	16.6	36.26	—	56.7	—
9	84.7	49.28	−82.4	32	—	—	—
10	−14.48	5.5	−1.5	24.82	—	—	—
11	—	69	10	29.33	−25.98	—	—
12	−76.25	—	−11.07	154.64	—	—	−721.47
13	−36.57	—	44	101.8	—	—	29.7
14	−60.25	−14.58	67.67	−44.46	—	—	—
15	—	39.68	−1.34	143	—	—	−1212.86
16	22.78	48.32	−21.44	32	—	—	—
17	−207.85	116.62	130.42	104.43	—	—	—
18	15.98	—	0	165.68	—	—	−956.15
19	80.85	−32.62	−73.43	−22.43	—	—	—
20	—	67.61	−4.39	14.07	−31.6	—	—
21	—	21.83	−7.43	64	—	68.36	—
22	—	168.62	−77.43	138.43	—	—	−26.73
23	—	52.25	−2.3	199.46	—	—	−3418.73
24	27.88	19.16	−29.22	−7.48	—	—	—
25	—	65.74	16.66	43.54	−14.35	—	—
26	212.36	0.64	−227.71	−2.64	—	—	—
27	−16.29	62.2	8.86	44	—	—	—
28	—	105	−15.98	96.68	—	—	334.8
29	—	−40.68	7.43	33.57	—	60.06	—
30	−7.16	31.71	22.52	13	—	—	—