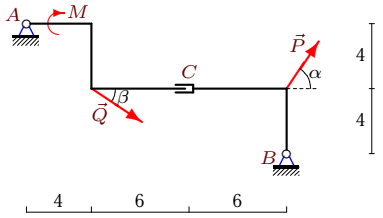
Расчет составной конструкции

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

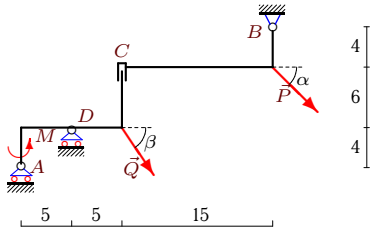
C8.



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

Вариант 2

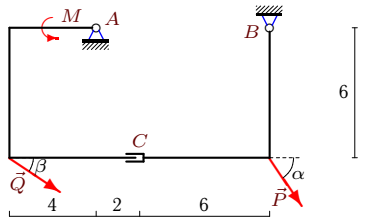
C8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 4$ кН/м, $M = 50$ кНм.

Вариант 3

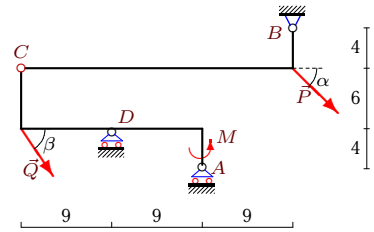
C8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 2$ кН/м, $M = 90$ кНм.

Вариант 4

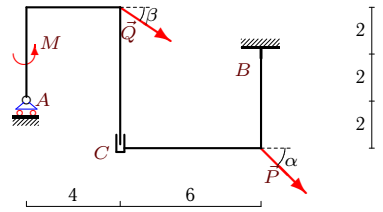
C8.



$P = 60$ кН, $Q = 70$ кН, $\alpha = 45°$, $\beta = 60°$, $\rho = 3$ кН/м, $M = 30$ кНм.

Вариант 5

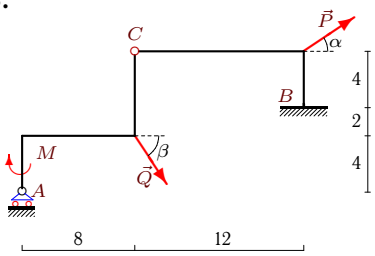
C8.



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

Вариант 6

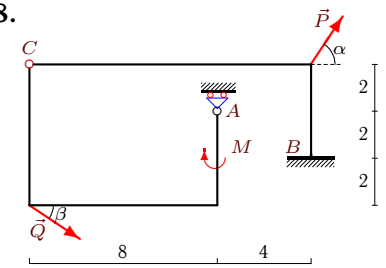
C8.



$P = 10$ кН, $Q = 20$ кН, $\alpha = 30°$, $\beta = 60°$, $\rho = 5$ кН/м, $M = 50$ кНм.

Вариант 7

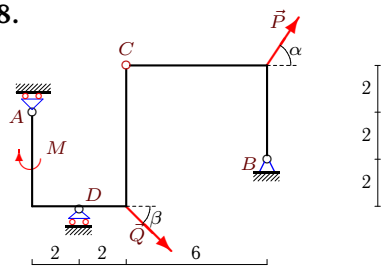
C8.



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

Вариант 8

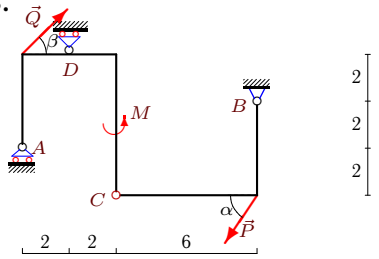
C8.



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

Вариант 9

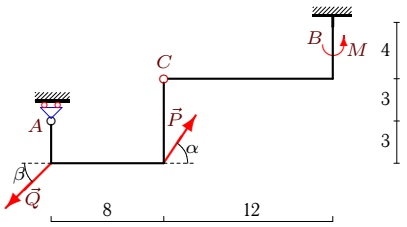
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 3$ кН/м, $M = 140$ кНм.

Вариант 10

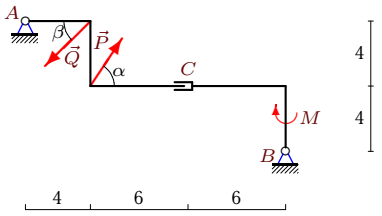
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 5$ кН/м, $M = 30$ кНм.

Вариант 11

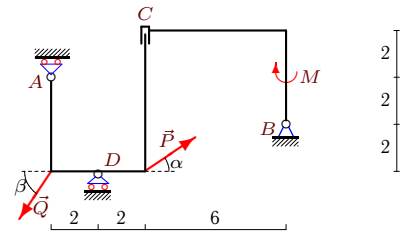
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 2$ кН/м, $M = 70$ кНм.

Вариант 12

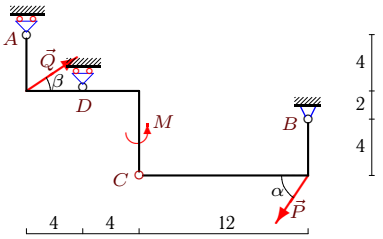
*C*8.



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

Вариант 13

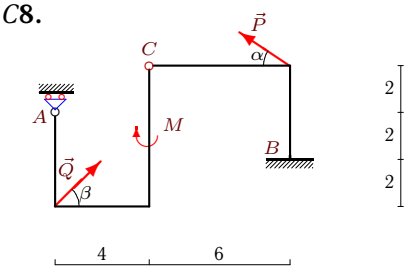
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 130$ кНм.

Вариант 14

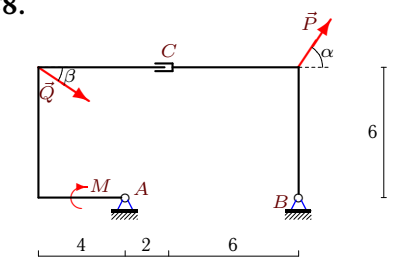
*C*8.



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

Вариант 15

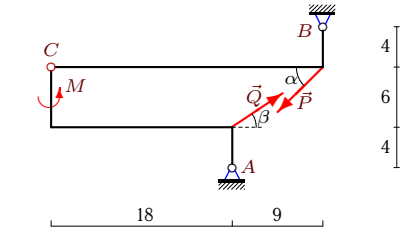
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 2$ кН/м, $M = 70$ кНм.

Вариант 16

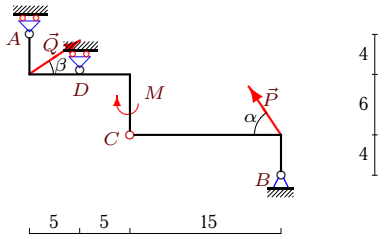
*C*8.



$P = 50$ кН, $Q = 60$ кН, $\alpha = 45°$, $\beta = 30°$, $\rho = 1$ кН/м, $M = 40$ кНм.

Вариант 17

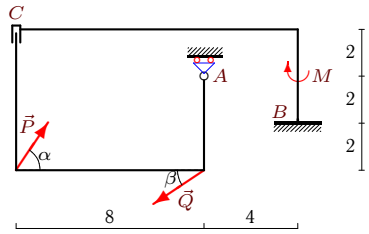
*C*8.



$P = 20$ кН, $Q = 30$ кН, $\alpha = 60°$, $\beta = 30°$, $\rho = 3$ кН/м, $M = 130$ кНм.

Вариант 18

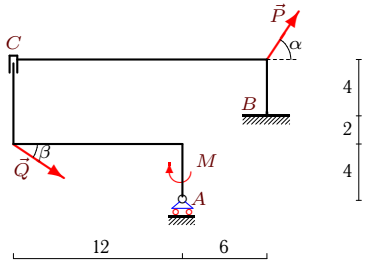
*C*8.



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

Вариант 19

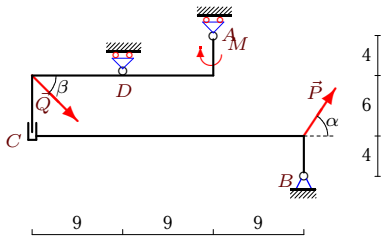
*C*8.



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

Вариант 20

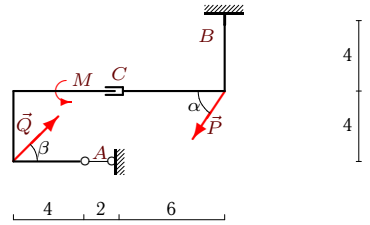
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 100$ кНм.

Вариант 21

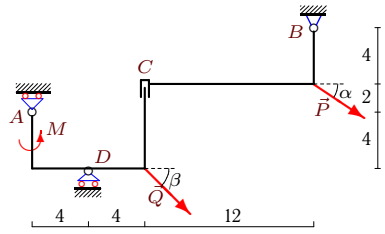
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 80$ кНм.

Вариант 22

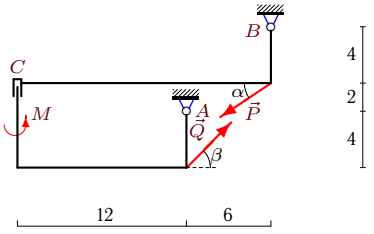
*C*8.



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

Вариант 23

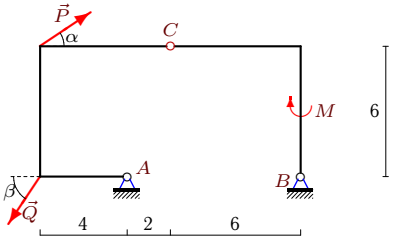
*C*8.



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

Вариант 24

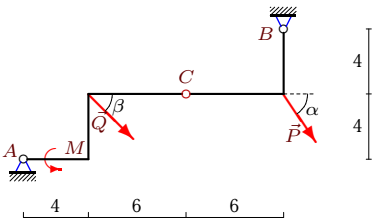
*C*8.



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

Вариант 25

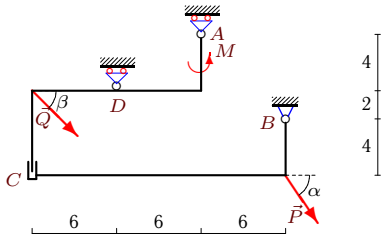
*C*8.



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

Вариант 26

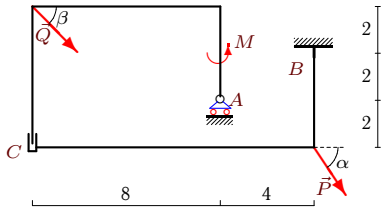
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 4$ кН/м, $M = 100$ кНм.

Вариант 27

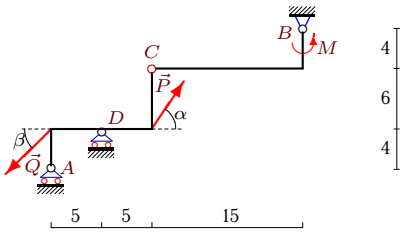
*C*8.



$P = 40$ кН, $Q = 50$ кН, $\alpha = 60°$, $\beta = 45°$, $\rho = 6$ кН/м, $M = 110$ кНм.

Вариант 28

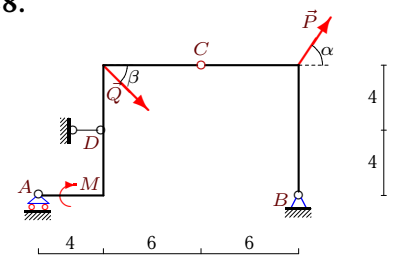
*C*8.



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

Вариант 29

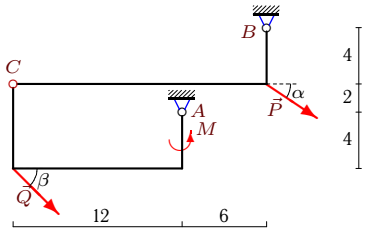
*C*8.



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

Вариант 30

*C*8.



$P = 30$ кН, $Q = 40$ кН, $\alpha = 30°$, $\beta = 45°$, $\rho = 1$ кН/м, $M = 20$ кНм.

Ответы

	X_A	Y_A	X_B	Y_B	X_D	Y_D	M_B
1	−25.98	32.25	−10	13.43	—	—	—
2	—	135.32	−77.43	118.43	—	5.3	—
3	−25.98	106.74	−10	−18.42	—	—	—
4	—	−145.26	−77.43	83.46	—	341.85	—
5	—	114	−87.32	95.36	—	—	36.5
6	—	41.25	−18.66	141.07	—	—	−1078.2
7	—	23.01	−35.98	144.67	—	—	−1199.9
8	—	72.61	−55.36	23.26	—	−23.16	—
9	—	−96.66	−15.36	45.4	—	122.54	—
10	—	58.84	15.36	106.88	—	—	−651.08
11	15.36	23.16	0	25.55	—	—	—
12	—	33.98	1.34	40	—	34.34	—
13	—	−50.8	−15.98	42	—	113.12	—
14	—	31.64	−2.3	45.07	—	—	−141.23
15	−25.98	32.76	−10	20.92	—	—	—
16	−71.77	3.33	55.16	61.03	—	—	—
17	—	−96.42	−15.98	21.44	—	159.65	—
18	—	105.68	15.98	96	—	—	−731.47
19	—	147	−35.98	114.68	—	—	−1997.96
20	—	−146.07	−55.36	89.36	—	293.43	—
21	−35.36	—	20	143.29	—	—	−535.74
22	—	142.4	−54.27	79	—	−42.12	—
23	−136.82	15.72	134.52	59	—	—	—
24	−4.83	27.49	6.17	12.83	—	—	—
25	−204.92	−47.36	149.57	141.35	—	—	—
26	—	−169.57	−55.36	122.64	—	292.93	—
27	—	143.36	−55.36	130.64	—	—	−1314.13
28	—	24.5	15.36	35.93	—	57.29	—
29	—	39.98	−43.78	56.73	−11.58	—	—
30	−198.4	27.26	144.13	60.03	—	—	—