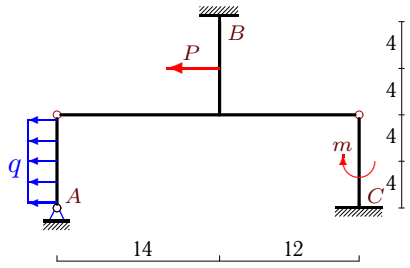
Расчет рамы методом перемещений

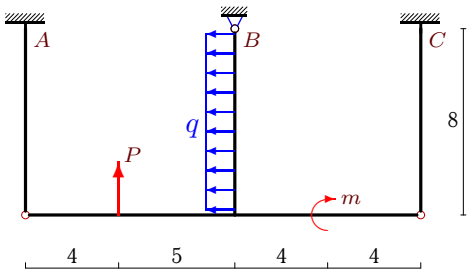
Найти реакции опор рамы.

Задача 1.1. 2



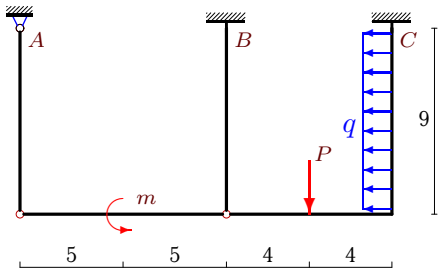
q =6 кН/м, P =6 кН, m =4 кНм.

Задача 1.2. 2



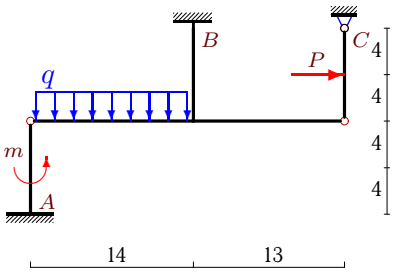
q =8 кН/м, P =11 кН, m =7 кНм.

Задача 1.3. 2



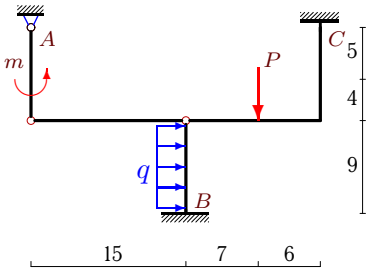
q =8 кН/м, P =11 кН, m =7 кНм.

Задача 1.4. 2



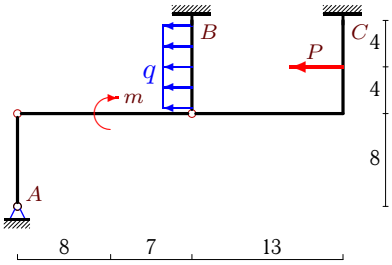
q =9 кН/м, P =10 кН, m =6 кНм.

Задача 1.5. 2



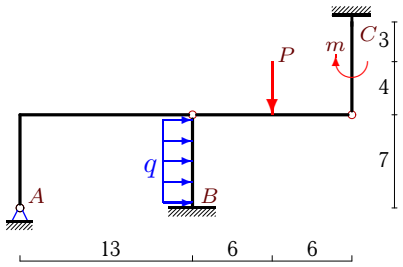
q =8 кН/м, P =9 кН, m =6 кНм.

Задача 1.6. 2



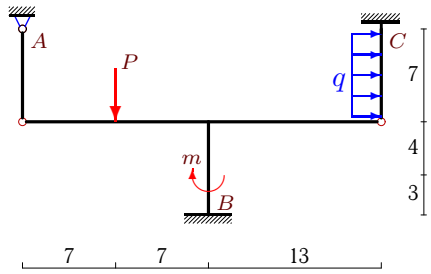
q =7 кН/м, P =10 кН, m =6 кНм.

Задача 1.7. 2



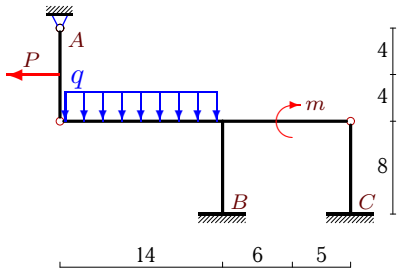
q =6 кН/м, P =8 кН, m =6 кНм.

Задача 1.8. 2



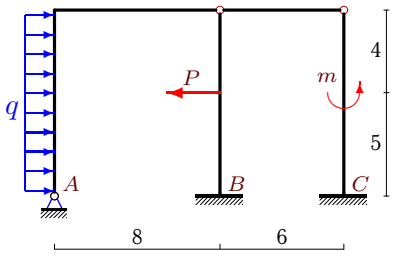
q =5 кН/м, P =9 кН, m =6 кНм.

Задача 1.9.



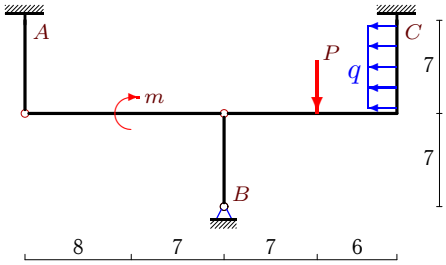
q =6 кН/м, P =5 кН, m =4 кНм.

Задача 1.10.



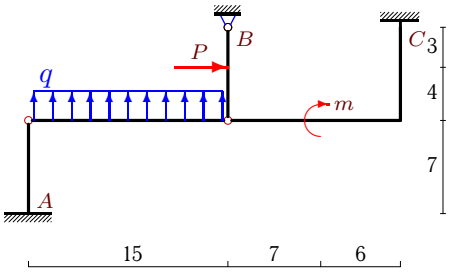
q =8 кН/м, P =4 кН, m =3 кНм.

Задача 1.11.



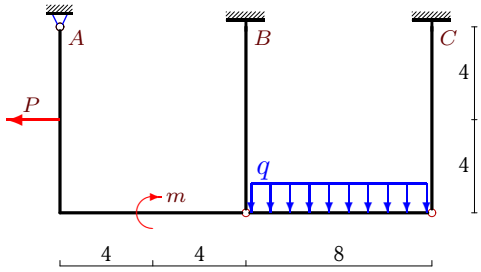
q =7 кН/м, P =9 кН, m =6 кНм.

Задача 1.12.



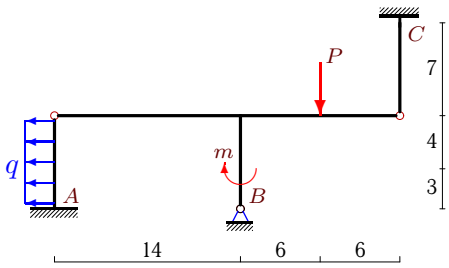
q =7 кН/м, P =10 кН, m =6 кНм.

Задача 1.13.



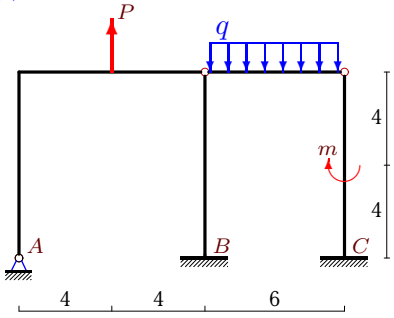
q =6 кН/м, P =11 кН, m =7 кНм.

Задача 1.14.



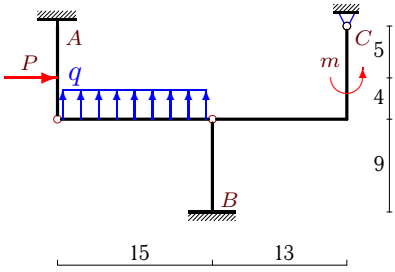
q =6 кН/м, P =8 кН, m =6 кНм.

Задача 1.15.



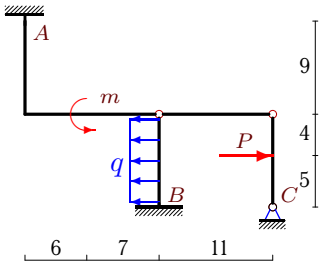
q =6 кН/м, P =4 кН, m =4 кНм.

Задача 1.16.



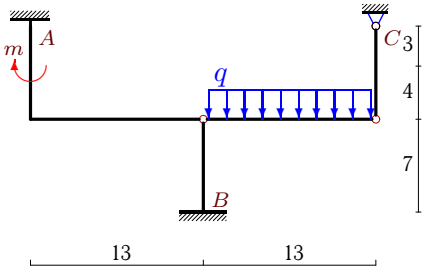
q =10 кН/м, P =9 кН, m =5 кНм.

Задача 1.17.



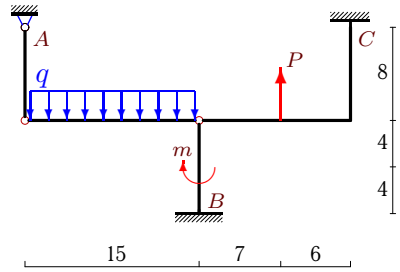
q =10 кН/м, P =5 кН, m =4 кНм.

Задача 1.18.



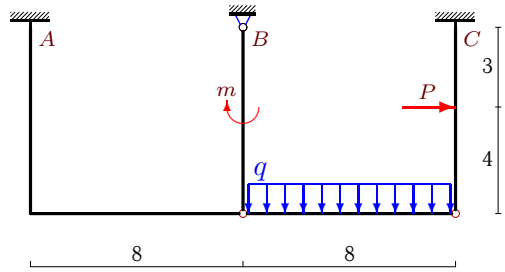
q =7 кН/м, P =9 кН, m =6 кНм.

Задача 1.19.



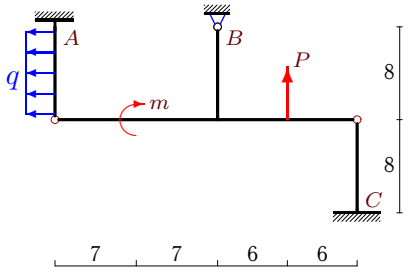
q =6 кН/м, P =9 кН, m =6 кНм.

Задача 1.20.



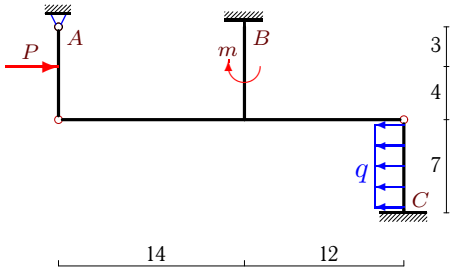
q =6 кН/м, P =11 кН, m =6 кНм.

Задача 1.21.



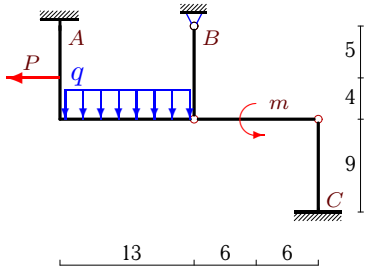
q =8 кН/м, P =7 кН, m =6 кНм.

Задача 1.22.



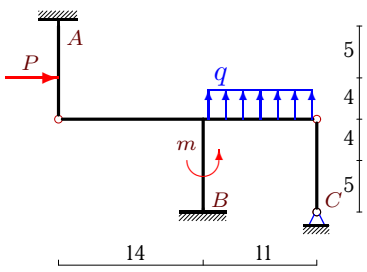
q =5 кН/м, P =7 кН, m =4 кНм.

Задача 1.23.



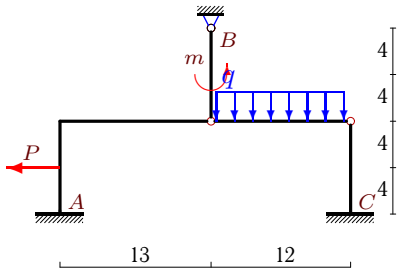
q =9 кН/м, P =7 кН, m =4 кНм.

Задача 1.24.



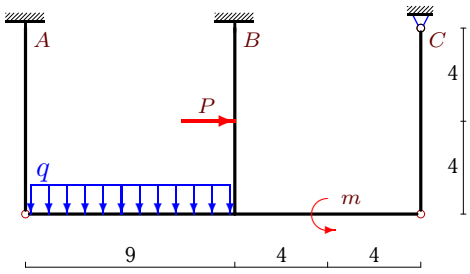
q =10 кН/м, P =5 кН, m =4 кНм.

Задача 1.25.



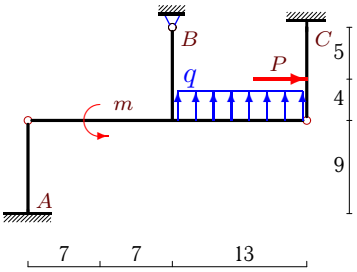
q =8 кН/м, P =6 кН, m =4 кНм.

Задача 1.26.



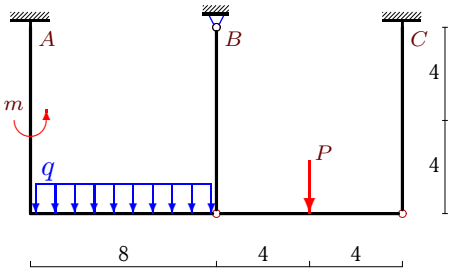
q =9 кН/м, P =11 кН, m =6 кНм.

Задача 1.27.



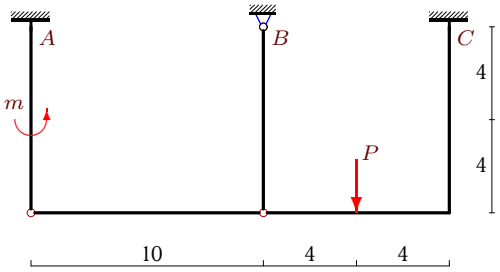
q =9 кН/м, P =10 кН, m =6 кНм.

Задача 1.28.



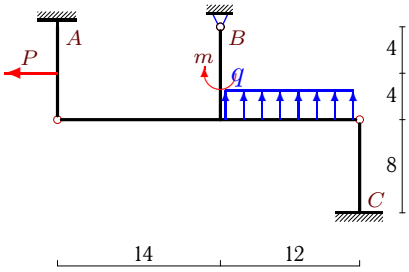
q =8 кН/м, P =11 кН, m =7 кНм.

Задача 1.29.



q =8 кН/м, P =11 кН, m =7 кНм.

Задача 1.30.



q =8 кН/м, P =7 кН, m =6 кНм.

1.2

Расчет рамы методом перемещений

Коэффициенты системы уравнений и решение системы

№	r_{11}	r_{12}	r_{22}	R_{1p}	R_{2p}	Z_1	Z_2
1	0.964	0.094	0.029	6.000	26.437	118.323	-1281.032
2	1.083	0.047	0.018	47.221	40.000	62.031	-2440.970
3	0.819	0.074	0.021	70.500	36.000	106.915	-2134.492
4	0.945	0.094	0.029	220.500	-4.156	-362.450	1301.706
5	0.675	0.074	0.021	22.367	-27.667	-298.538	2419.337
6	0.731	0.094	0.029	10.000	26.000	169.929	-1431.238
7	0.659	-0.061	0.026	0.000	-14.884	67.242	724.149
8	1.016	-0.122	0.044	25.462	-14.384	21.993	390.504
9	0.987	-0.094	0.029	147.760	2.500	-226.721	-810.841
10	0.708	-0.037	0.012	81.000	-43.090	80.823	3732.748
11	0.802	0.122	0.044	50.950	24.500	38.424	-667.821
12	0.802	0.122	0.044	0.391	-4.286	-26.975	173.529
13	0.750	0.047	0.018	17.375	7.563	4.467	-442.133
14	0.893	-0.061	0.026	-16.653	14.700	-23.531	-615.155
15	0.750	-0.047	0.018	6.000	-0.563	-7.200	12.800
16	0.564	0.037	0.012	-0.185	-3.971	-25.891	399.340
17	0.675	0.074	0.021	-0.260	30.972	273.556	-2490.050
18	0.802	0.122	0.044	1.837	1.259	3.679	-39.100
19	0.731	0.094	0.029	-22.367	-0.844	45.655	-117.297
20	0.946	0.122	0.044	0.000	-1.741	-8.074	62.408
21	0.839	0.047	0.018	16.500	24.000	66.500	-1542.667
22	1.036	0.122	0.044	1.224	10.965	42.543	-369.847
23	0.675	0.074	0.021	-181.483	4.081	480.176	-1926.966
24	0.931	-0.074	0.021	150.509	-1.228	-219.753	-731.443
25	0.731	-0.094	0.029	-6.000	2.500	-4.643	-100.190
26	1.208	0.094	0.029	79.375	-5.500	-106.761	529.370
27	0.778	0.037	0.012	189.375	-3.772	-300.762	1207.843
28	0.875	0.094	0.029	-65.750	-1.313	107.043	-297.739
29	0.875	0.094	0.029	16.500	-0.984	-34.174	142.957
30	0.839	0.047	0.018	144.750	3.031	-191.333	337.778

	Реакции опор								
№	M_A	X_A	Y_A	M_B	X_B	Y_B	M_C	X_C	Y_C
1	0.000	24.000	-1.811	96.516	21.931	-0.654	-60.548	8.069	2.465
2	114.420	14.303	-6.447	0.000	35.395	-8.445	114.420	14.303	3.892
3	0.000	0.000	0.700	79.055	8.784	-2.274	188.352	63.216	12.574
4	61.767	-8.471	52.798	-31.422	3.471	79.636	0.000	-5.000	-6.434
5	0.000	0.667	0.000	170.605	-54.956	7.733	-112.868	-17.711	1.267
6	0.000	0.000	-0.400	123.089	43.386	-2.616	101.696	22.614	3.016
7	-0.000	-2.217	-1.194	81.086	-32.584	5.194	-44.397	-7.200	4.000
8	0.000	0.000	2.476	40.554	-9.710	6.134	-54.533	-25.290	0.390
9	0.000	2.500	34.970	-19.336	-2.251	54.218	-38.008	4.751	-5.188
10	-0.000	-39.368	-3.789	131.830	-12.870	3.789	138.861	-15.762	0.000
11	40.887	5.841	-0.400	0.000	0.000	2.151	99.379	43.159	7.249
12	10.624	-1.518	-52.500	0.000	-5.714	-52.513	-13.541	-2.768	0.013
13	0.000	5.819	-1.194	20.725	2.591	25.194	20.725	2.591	24.000
14	-74.413	31.630	0.360	0.000	4.989	5.630	37.663	5.380	2.010
15	0.000	-0.412	-2.412	0.600	-0.075	16.413	0.100	0.488	18.000
16	-29.235	-7.248	-75.000	14.790	-1.643	-74.540	0.000	-0.108	-0.460
17	123.658	20.725	-4.528	-193.474	66.497	4.528	0.000	-2.222	0.000
18	2.757	-0.342	-0.065	-2.394	0.342	45.565	0.000	0.000	45.500
19	0.000	0.000	45.000	-6.248	1.531	41.756	-0.417	-1.531	-5.756
20	-5.335	-1.195	0.378	0.000	-0.857	23.622	-18.637	-8.948	24.000
21	136.313	49.039	-1.500	0.000	5.922	-4.698	-72.313	9.039	-0.802
22	0.000	-4.000	-0.651	32.479	6.890	-0.235	-53.269	25.110	0.886
23	42.946	-0.930	64.601	0.000	0.000	52.732	-71.369	7.930	-0.333
24	19.066	-0.104	3.364	-4.162	-4.896	-66.665	0.000	0.000	-46.698
25	-14.232	4.913	0.082	0.000	0.500	47.918	-4.696	0.587	48.000
26	-24.814	-3.102	34.329	-33.938	-7.898	52.519	0.000	0.000	-5.848
27	44.735	-4.971	5.086	0.000	6.169	-72.872	-60.784	-11.198	-49.214
28	2.902	-1.745	34.982	0.000	0.000	34.518	13.957	1.745	5.500
29	-5.826	0.147	0.000	0.000	0.000	5.039	-4.859	-0.147	5.961
30	-5.333	2.833	2.929	0.000	6.146	-58.942	15.833	-1.979	-39.986