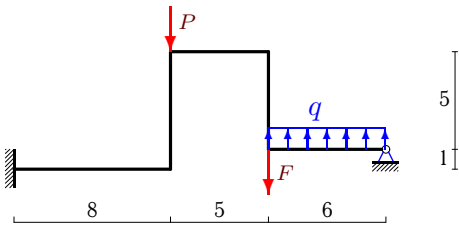


Статически неопределимая рама

Найти реакции опор рамы.

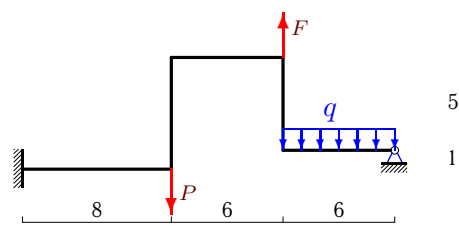
Задача 25.1



$P = 8 \text{ кН}, F = 10 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

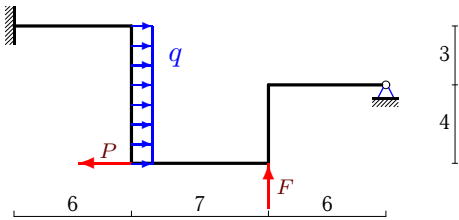
Задача 25.2



$P = 8 \text{ кН}, F = 15 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

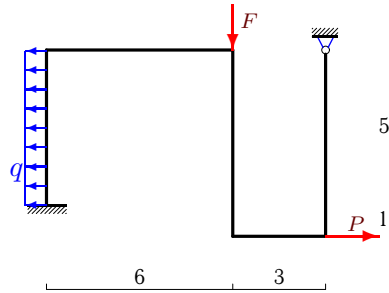
Задача 25.3



$P = 5 \text{ кН}, F = 18 \text{ кН}, q = 4 \text{ кН/м}.$

25.3

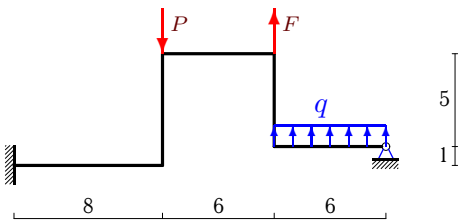
Задача 25.4



$P = 8 \text{ кН}, F = 5 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

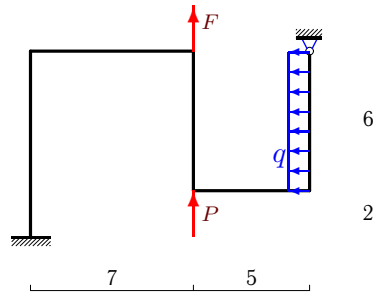
Задача 25.5



$P = 8 \text{ кН}, F = 8 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

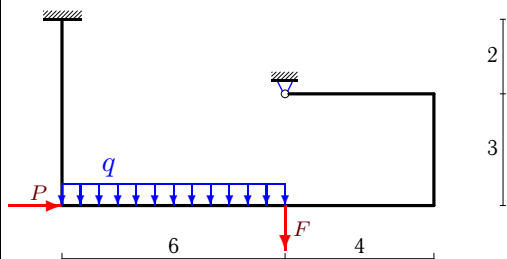
Задача 25.6



$P = 5 \text{ кН}, F = 18 \text{ кН}, q = 1 \text{ кН/м}.$

25.3

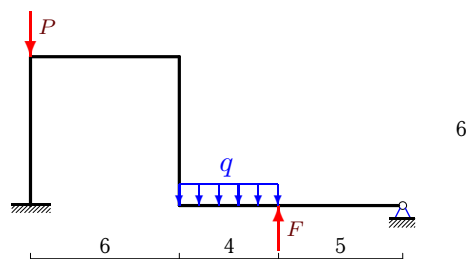
Задача 25.7



$P = 20 \text{ кН}, F = 5 \text{ кН}, q = 1 \text{ кН/м}.$

25.3

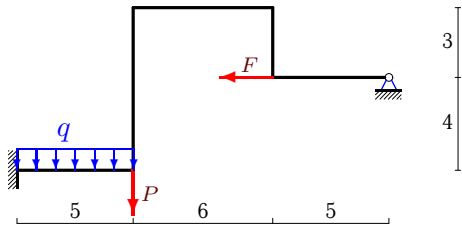
Задача 25.8



$P = 12 \text{ кН}, F = 10 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

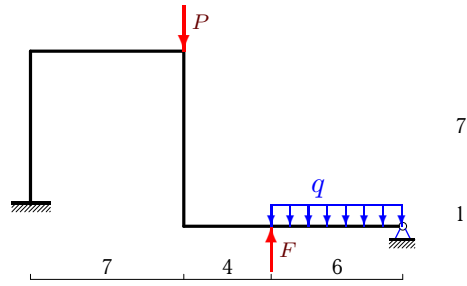
Задача 25.9



$P = 15 \text{ кН}, F = 12 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

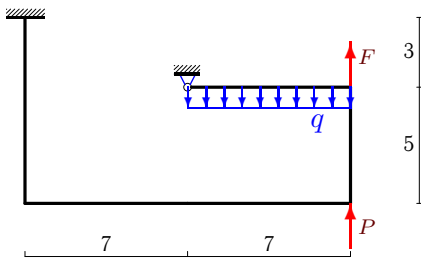
Задача 25.10



$P = 20 \text{ кН}, F = 18 \text{ кН}, q = 9 \text{ кН/м}.$

25.3

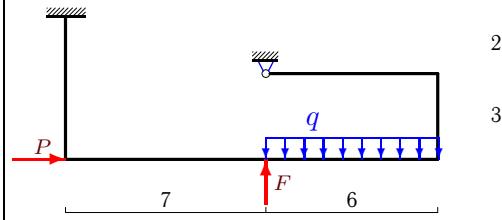
Задача 25.11



$P = 20 \text{ кН}, F = 12 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

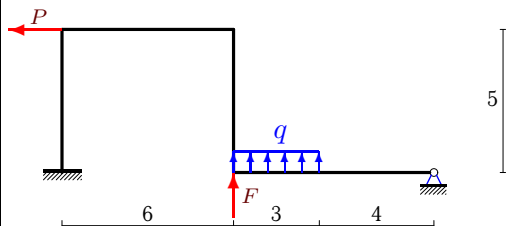
Задача 25.12



$P = 30 \text{ кН}, F = 10 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

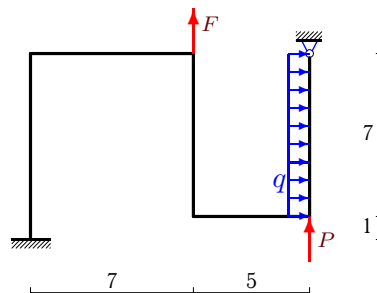
Задача 25.13



$P = 16 \text{ кН}, F = 15 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

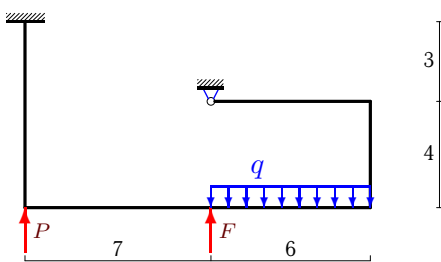
Задача 25.14



$P = 10 \text{ кН}, F = 18 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

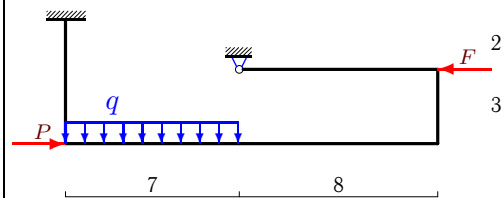
Задача 25.15



$P = 25 \text{ кН}, F = 12 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

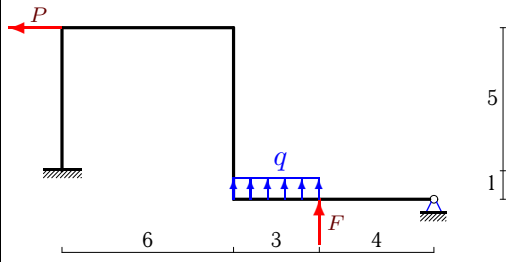
Задача 25.16



$P = 20 \text{ кН}, F = 6 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

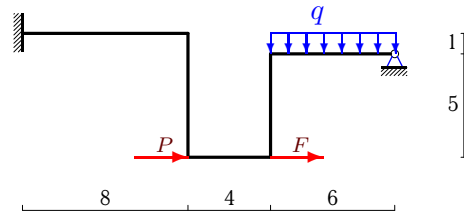
Задача 25.17



$P = 12 \text{ кН}, F = 10 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

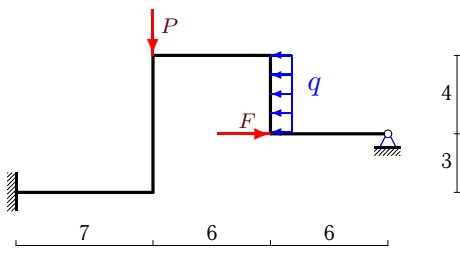
Задача 25.18



$P = 9 \text{ кН}, F = 5 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

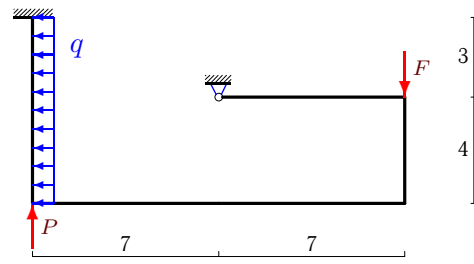
Задача 25.19



$P = 15 \text{ кН}, F = 10 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

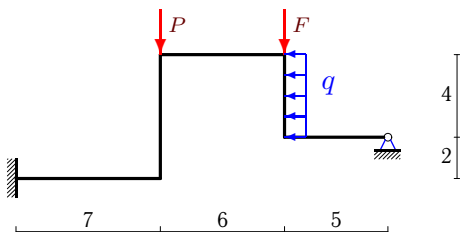
Задача 25.20



$P = 30 \text{ кН}, F = 12 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

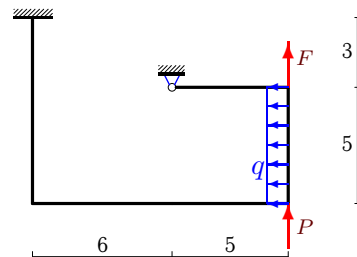
Задача 25.21



$P = 4 \text{ кН}, F = 10 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

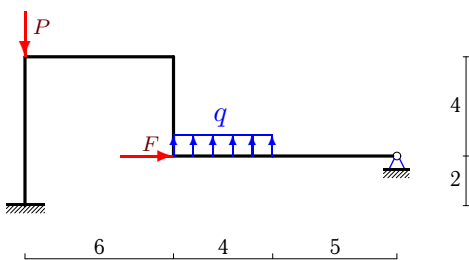
Задача 25.22



$P = 20 \text{ кН}, F = 5 \text{ кН}, q = 4 \text{ кН/м}.$

25.3

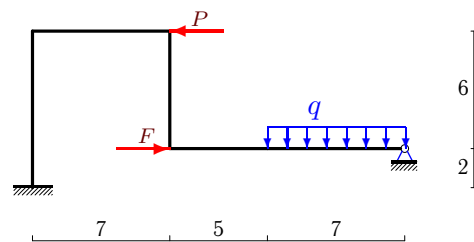
Задача 25.23



$P = 12 \text{ кН}, F = 15 \text{ кН}, q = 1 \text{ кН/м}.$

25.3

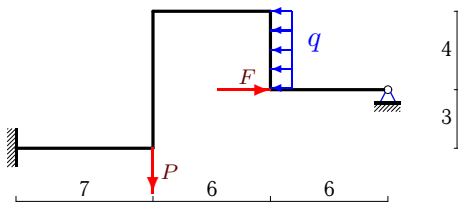
Задача 25.24



$P = 20 \text{ кН}, F = 12 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

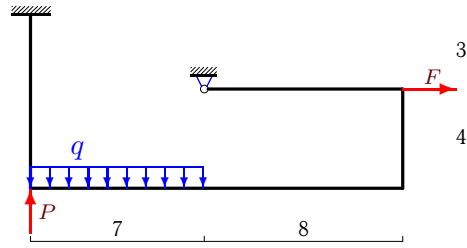
Задача 25.25



$P = 15 \text{ кН}, F = 6 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

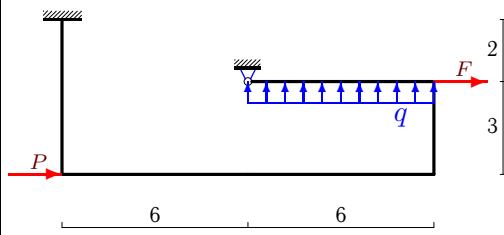
Задача 25.26



$P = 25 \text{ кН}, F = 18 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

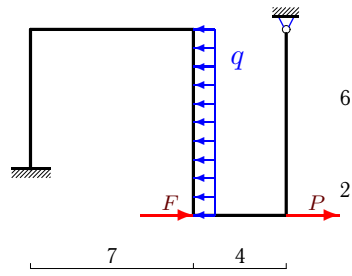
Задача 25.27



$P = 20 \text{ кН}, F = 10 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

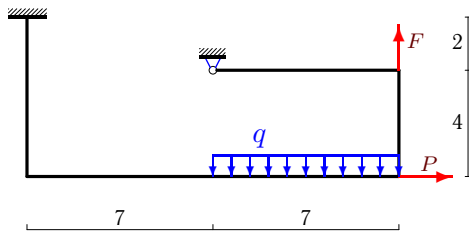
Задача 25.28



$P = 10 \text{ кН}, F = 6 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

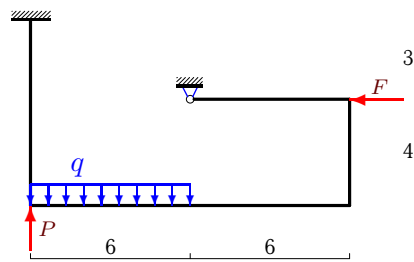
Задача 25.29



$P = 20 \text{ кН}, F = 11 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

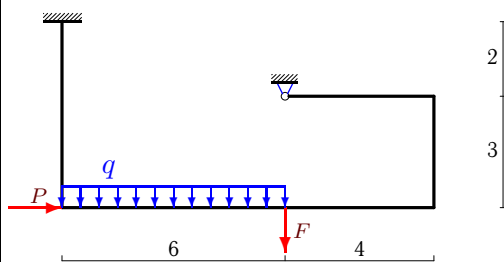
Задача 25.30



$P = 24 \text{ кН}, F = 5 \text{ кН}, q = 6 \text{ кН/м}.$

25.3

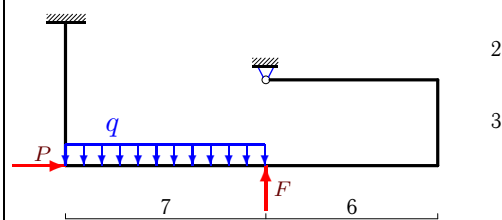
Задача 25.31



$P = 16 \text{ кН}, F = 5 \text{ кН}, q = 2 \text{ кН/м}.$

25.3

Задача 25.32



$P = 20 \text{ кН}, F = 18 \text{ кН}, q = 3 \text{ кН/м}.$

25.3

Статически неопределимая рама

	X_A	Y_A	M_A	X_B	Y_B	δ_{11}	δ_{12}	δ_{22}	Δ_1	Δ_2
1	5.54	8.17	37.68	-5.54	-2.17	257.04	24.61	8.84	-2352.18	-469.65
2	4.72	7.87	38.64	-4.72	21.13	287.04	27.33	9.28	-2410.76	-487.46
3	-8.26	-6.31	-30.57	-14.74	-11.69	330.33	-33.79	10.01	1694.11	27.02
4	22.24	8.72	-20.73	-0.24	-3.72	295.33	21.83	8.67	-6116.75	-306.00
5	-9.89	-4.77	-25.42	9.89	-31.23	287.04	27.33	9.28	3533.00	506.00
6	4.87	-12.34	-54.07	1.13	-10.66	597.33	58.58	13.04	259.97	420.03
7	-14.98	10.05	-47.67	-5.02	0.95	166.74	-23.54	9.52	1375.56	101.22
8	0.62	12.24	-2.35	-0.62	-2.24	360.00	57.60	13.16	-86.40	-4.55
9	4.72	28.71	73.07	7.28	1.29	245.29	26.86	8.93	-3119.92	-779.59
10	-0.10	18.89	66.97	0.10	37.11	614.85	79.36	15.43	-5250.00	-1025.30
11	-35.96	2.19	-267.53	35.96	-20.19	595.33	-55.50	20.00	6560.75	3354.75
12	-20.06	1.95	-80.44	-9.94	0.05	193.29	-26.38	12.48	1755.00	474.43
13	6.05	-8.97	-58.67	9.95	-12.03	233.33	42.31	10.78	1069.49	376.49
14	-2.84	-5.06	2.98	-11.16	-22.94	698.11	56.22	13.22	1817.47	120.51
15	5.44	-28.39	28.62	-5.44	3.39	398.71	-45.99	15.21	-854.08	-185.02
16	-14.40	18.81	-30.62	0.40	2.19	205.11	-30.58	18.22	2018.02	117.33
17	8.00	-6.39	-57.57	4.00	-12.61	260.97	43.81	11.07	435.59	287.18
18	-8.30	8.18	32.92	-5.70	3.82	227.07	-21.91	8.41	2604.81	-458.48
19	6.18	14.48	60.47	-8.18	0.52	290.23	27.55	9.52	-3460.91	-746.36
20	61.45	-33.86	262.33	-19.45	15.86	410.67	-49.50	18.00	-12251.75	-1680.00
21	10.49	11.45	43.17	13.51	2.55	224.64	22.38	8.55	-3322.12	-603.78
22	-15.67	0.84	-116.99	35.67	-25.84	522.42	-49.53	15.79	2391.67	1070.83
23	-0.44	9.77	-4.54	-14.56	-1.77	311.09	54.88	12.44	384.78	80.39
24	8.04	9.21	-34.62	-0.04	11.79	712.10	95.08	16.73	-2430.29	-185.00
25	6.74	15.09	62.47	-0.74	-0.09	290.23	27.55	9.52	-3677.45	-780.69
26	4.32	-8.55	54.58	-22.32	4.55	425.81	-54.64	21.52	1143.63	-938.87
27	-55.74	3.18	-260.38	25.74	-39.18	176.67	-26.00	14.00	3078.00	2196.00
28	28.62	-1.98	-129.46	3.38	1.98	629.96	28.89	10.72	-14286.46	561.63
29	-24.45	6.35	-112.46	4.45	-3.35	329.33	-32.00	17.00	4454.83	1129.25
30	6.12	2.73	70.75	-1.12	9.27	369.67	-46.50	17.00	1026.00	-918.00
31	-10.45	13.16	-25.91	-5.55	3.84	166.74	-23.54	9.52	1132.67	0.67
32	-25.66	10.67	-110.14	5.66	-7.67	193.29	-26.38	12.48	2054.79	697.13