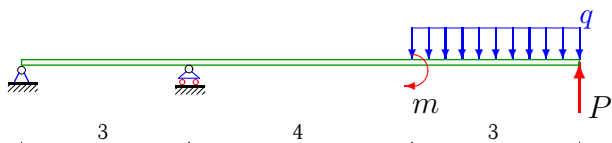


## Балка

Построить эпюры моментов и перерезывающих сил в балке. Найти сечение балки с максимальным моментом. Определить прогиб  $\Delta y$  балки в точке приложения силы  $P$ .

**Задача М4.1.**

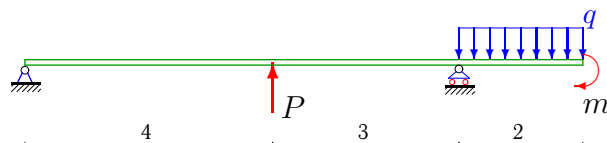
5



$$P = 5 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.2.**

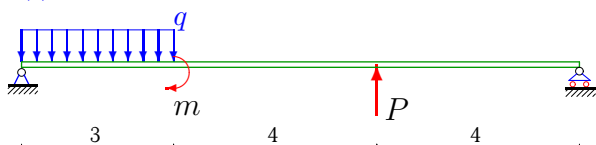
5



$$P = 6 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.3.**

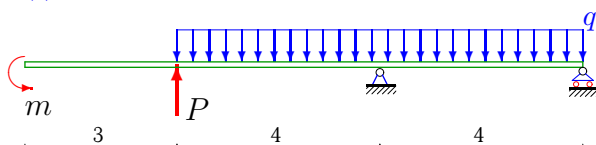
5



$$P = 7 \text{ кН}, m = 10 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.4.**

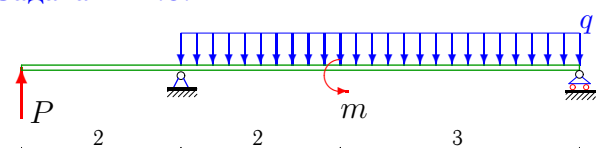
5



$$P = 4 \text{ кН}, m = 20 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.5.**

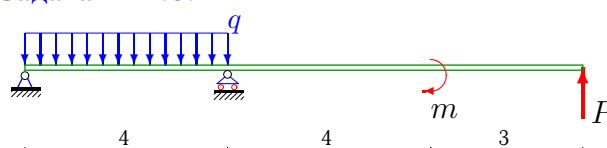
5



$$P = 5 \text{ кН}, m = 20 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.6.**

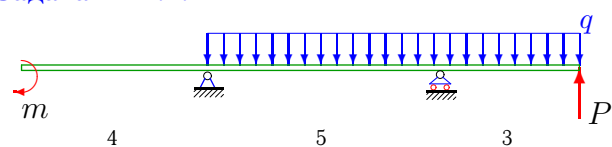
5



$$P = 7 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.7.**

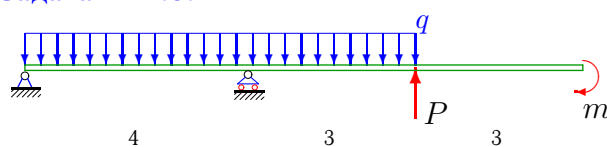
5



$$P = 7 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.8.**

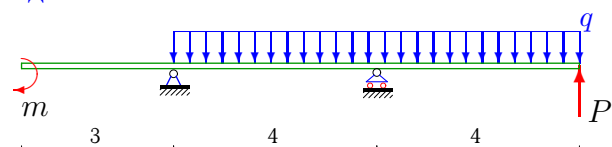
5



$$P = 8 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.9.**

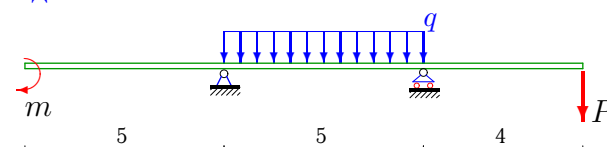
5



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

**Задача М4.10.**

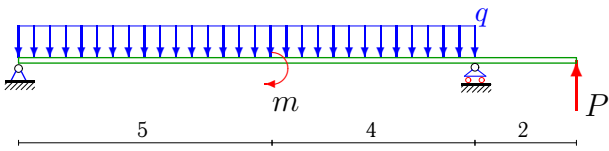
5



$$P = 3 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.11.**

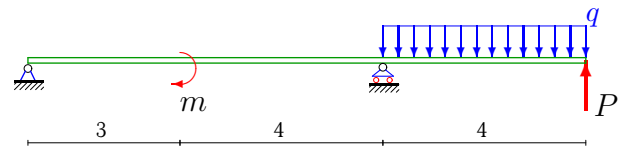
5



$$P = 7 \text{ кН}, m = 10 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.12.**

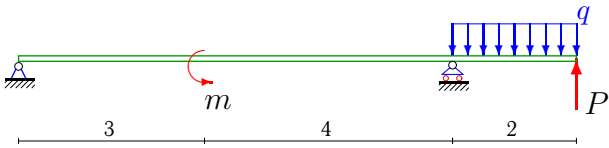
5



$$P = 6 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.13.**

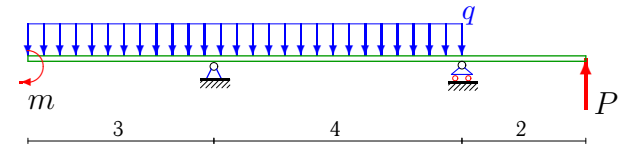
5



$$P = 6 \text{ кН}, m = 20 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.14.**

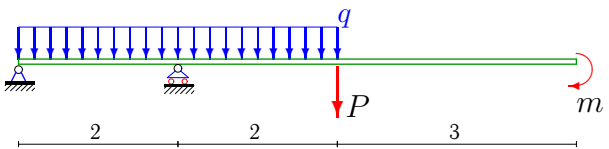
5



$$P = 3 \text{ кН}, m = 20 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.15.**

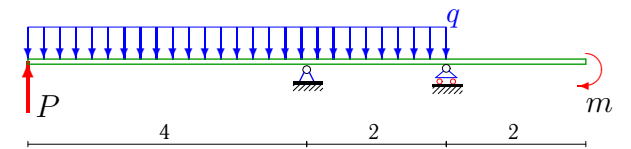
5



$$P = 3 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.16.**

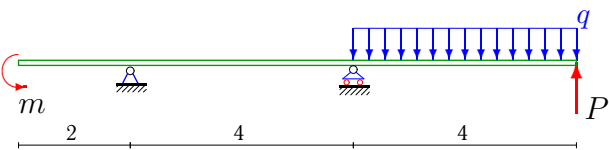
5



$$P = 6 \text{ кН}, m = 20 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.17.**

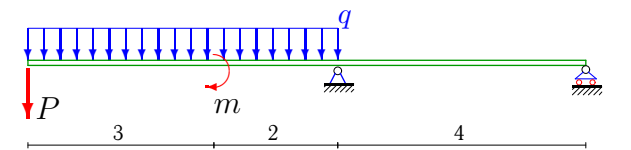
5



$$P = 4 \text{ кН}, m = 10 \text{ кНм}, q = 7 \text{ кН/м.}$$

**Задача М4.18.**

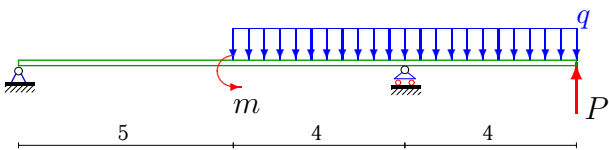
5



$$P = 3 \text{ кН}, m = 20 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.19.**

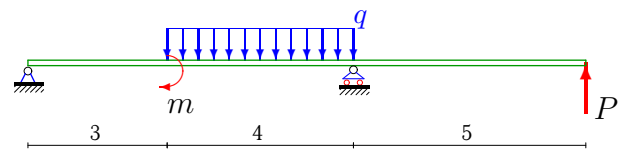
5



$$P = 7 \text{ кН}, m = 20 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.20.**

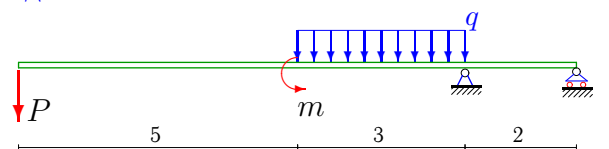
5



$$P = 7 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.21.**

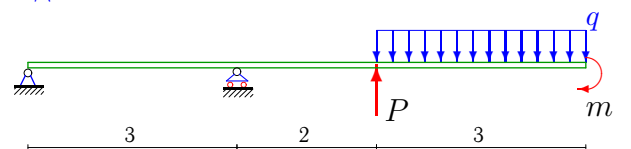
5



$$P = 3 \text{ кН}, m = 10 \text{ кНм}, q = 7 \text{ кН/м.}$$

**Задача М4.22.**

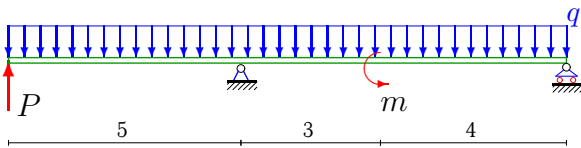
5



$$P = 5 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.23.**

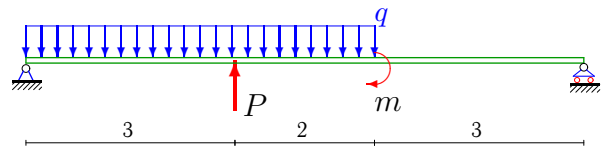
5



$$P = 9 \text{ кН}, m = 10 \text{ кНм}, q = 7 \text{ кН/м.}$$

**Задача М4.24.**

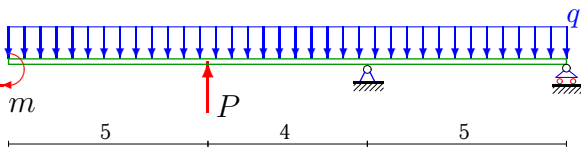
5



$$P = 6 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.25.**

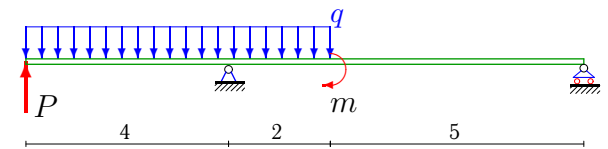
5



$$P = 7 \text{ кН}, m = 20 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.26.**

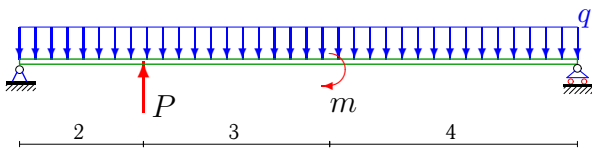
5



$$P = 6 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.27.**

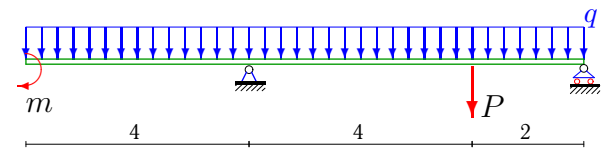
5



$$P = 5 \text{ кН}, m = 10 \text{ кНм}, q = 6 \text{ кН/м.}$$

**Задача М4.28.**

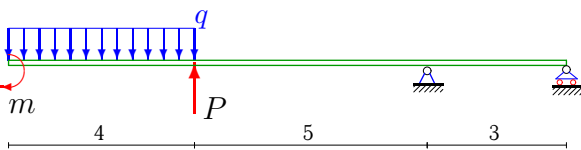
5



$$P = 3 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

**Задача М4.29.**

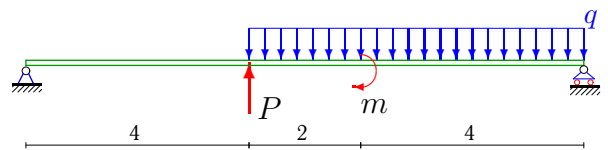
5



$$P = 8 \text{ кН}, m = 40 \text{ кНм}, q = 4 \text{ кН/м.}$$

**Задача М4.30.**

5

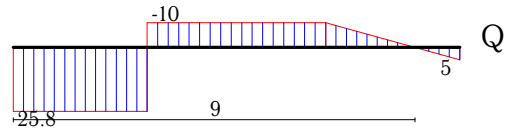
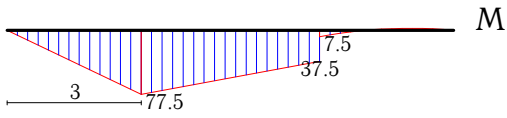


$$P = 8 \text{ кН}, m = 30 \text{ кНм}, q = 5 \text{ кН/м.}$$

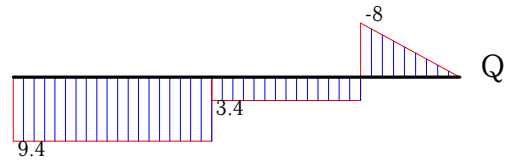
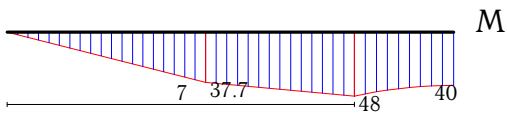
**M4 Ответы.**  
**Балка**

25.02.2013

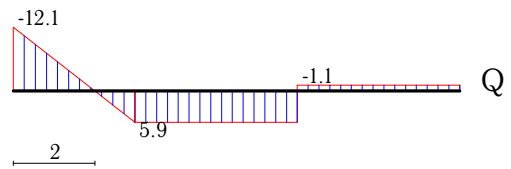
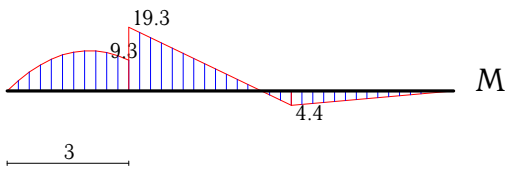
**Задача 1.**



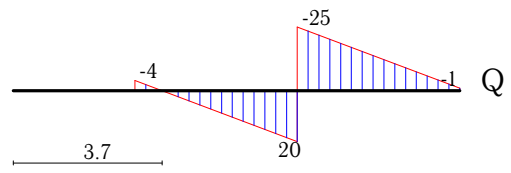
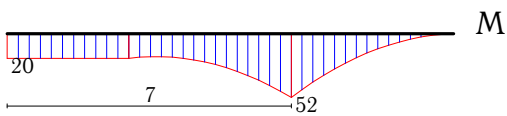
**Задача 2.**



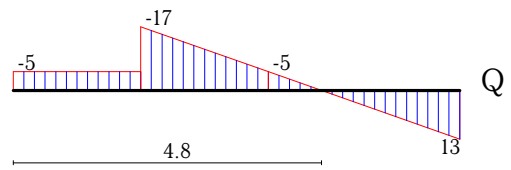
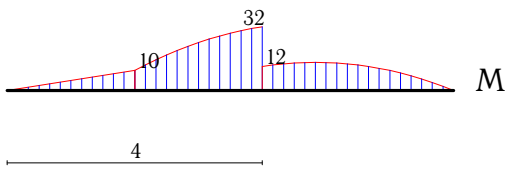
**Задача 3.**



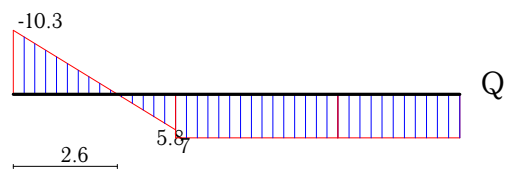
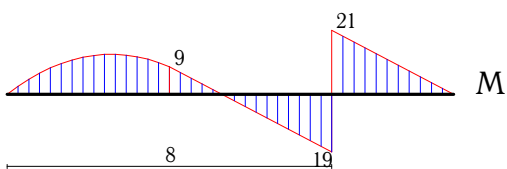
**Задача 4.**



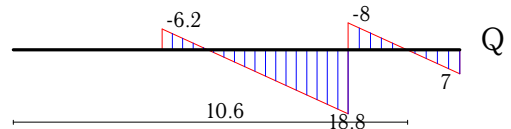
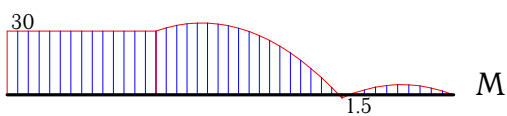
**Задача 5.**



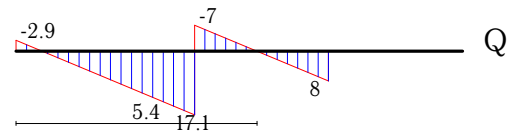
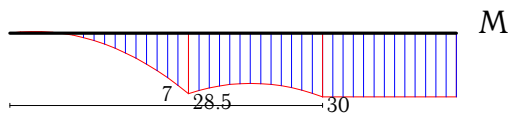
**Задача 6.**



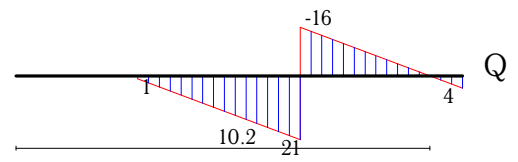
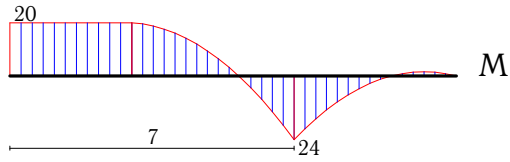
**Задача 7.**



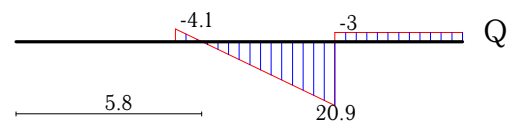
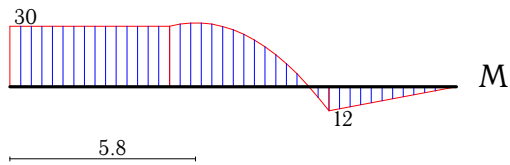
**Задача 8.**



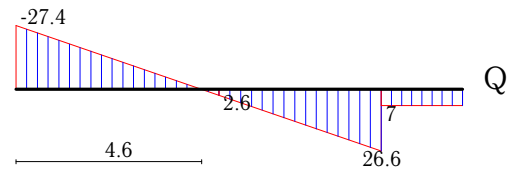
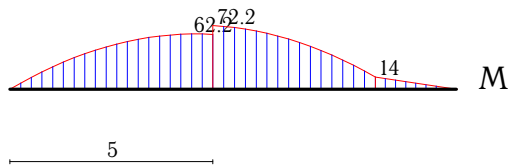
**Задача 9.**



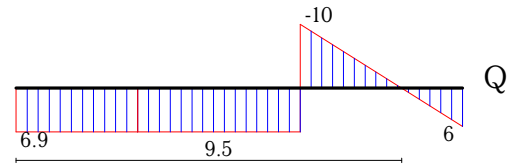
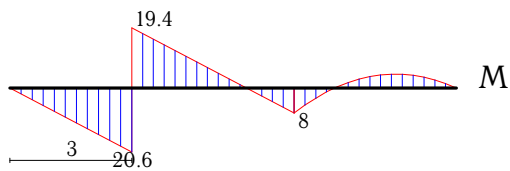
**Задача 10.**



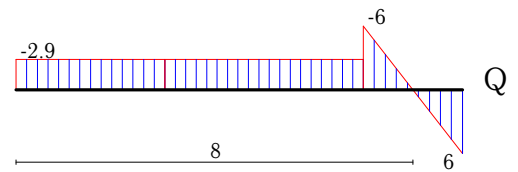
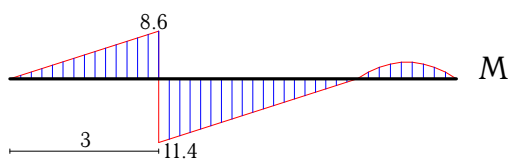
**Задача 11.**



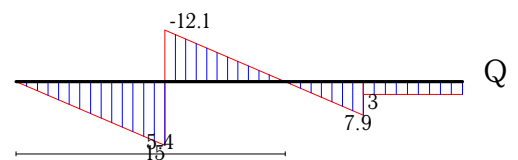
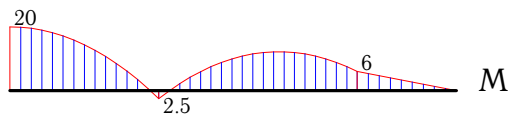
**Задача 12.**



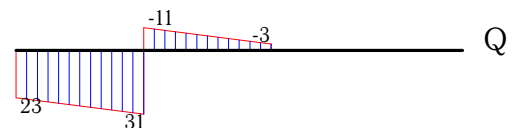
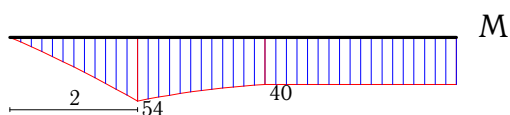
**Задача 13.**



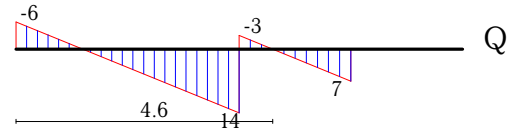
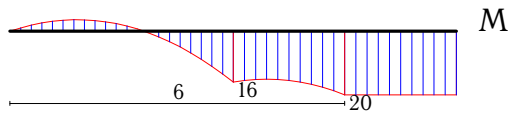
**Задача 14.**



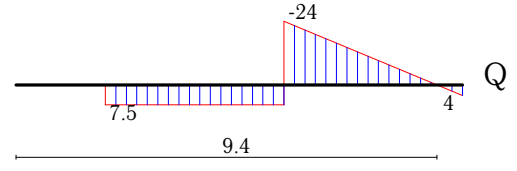
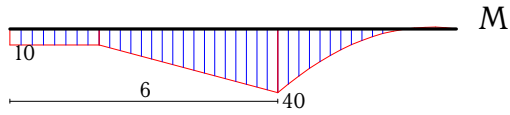
**Задача 15.**



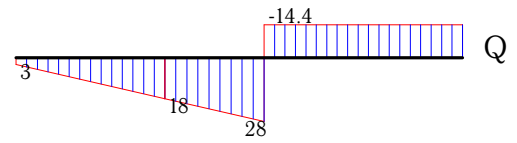
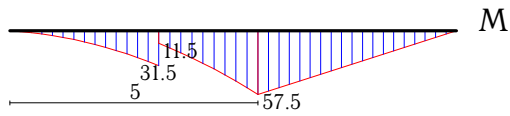
**Задача 16.**



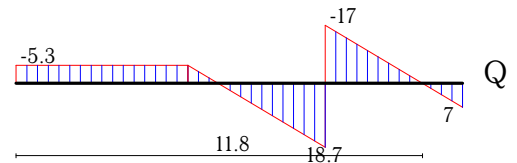
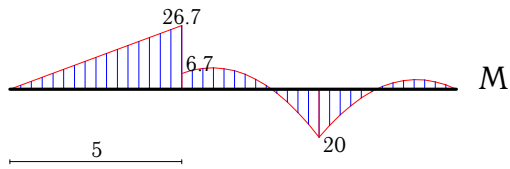
**Задача 17.**



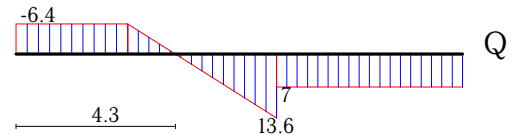
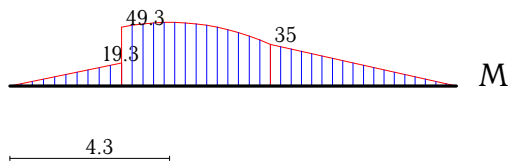
**Задача 18.**



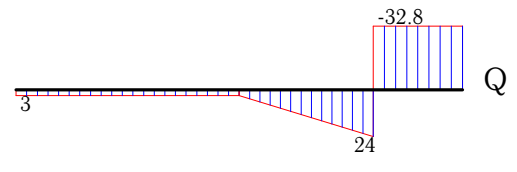
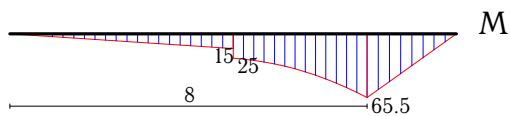
**Задача 19.**



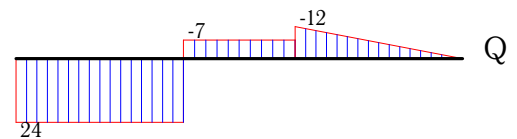
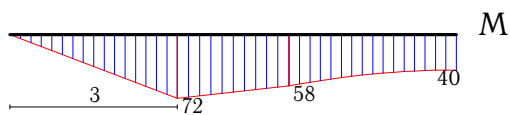
**Задача 20.**



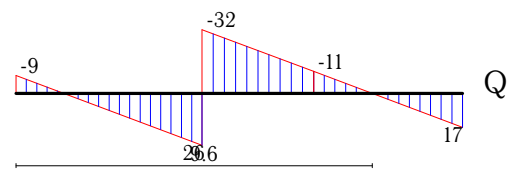
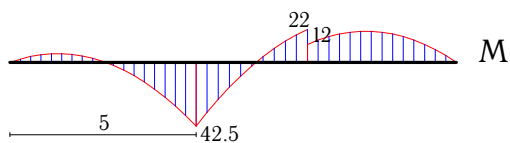
**Задача 21.**



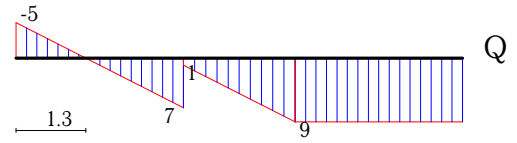
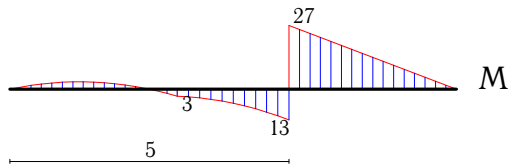
**Задача 22.**



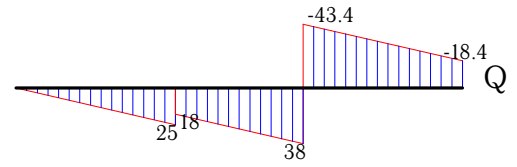
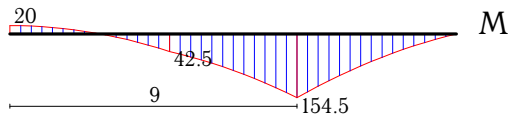
**Задача 23.**



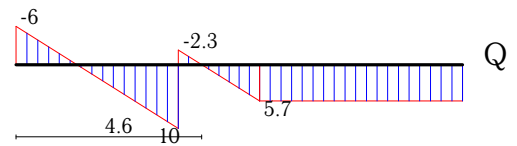
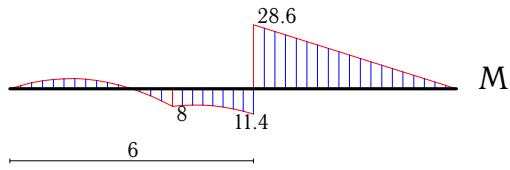
**Задача 24.**



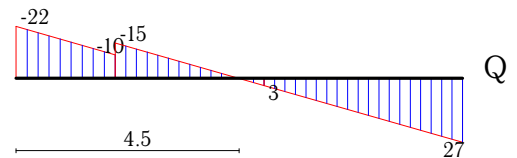
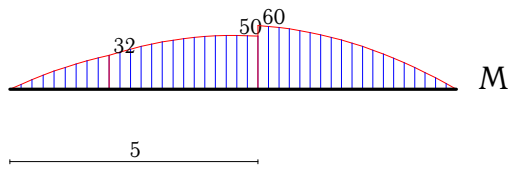
**Задача 25.**



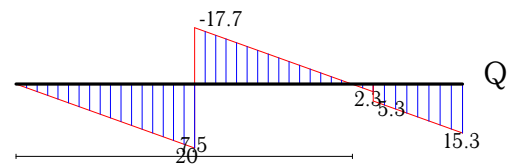
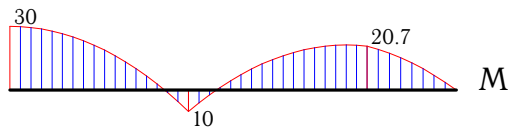
**Задача 26.**



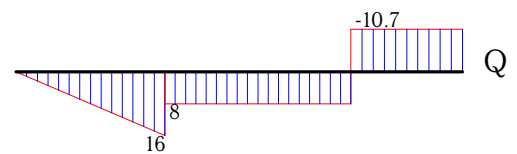
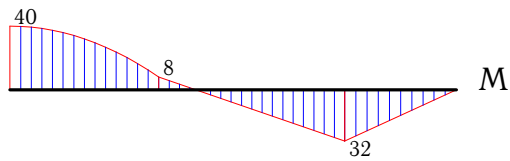
**Задача 27.**



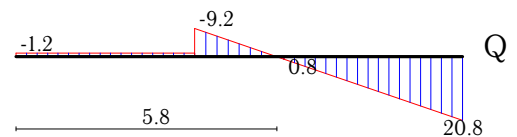
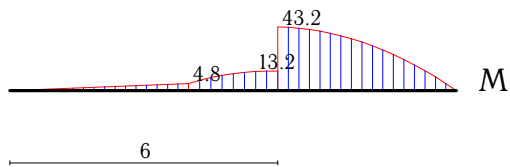
**Задача 28.**



**Задача 29.**



**Задача 30.**



№	$R_A$	$R_B$	$\max M $	$x_*$	$EI\Delta y$
1	-25.83	35.83	77.50	3.00	-1751.46
2	-9.43	11.43	48.00	7.00	192.00
3	12.09	-1.09	19.27	3.00	-45.42
4	45.00	-1.00	52.00	7.00	-480.00
5	12.00	13.00	32.00	4.00	106.50
6	10.25	-1.25	21.00	8.00	159.00
7	6.20	26.80	30.00	0.00	158.00
8	2.88	24.13	30.00	7.00	-187.63
9	-1.00	37.00	24.00	7.00	-96.00
10	4.10	23.90	31.68	5.82	60.17
11	27.44	19.56	72.22	5.00	469.39
12	-6.86	16.86	20.57	3.00	9.14
13	2.86	3.14	11.43	3.00	-16.95
14	27.13	4.88	20.00	0.00	47.33
15	-23.00	42.00	54.00	2.00	-165.33
16	17.00	7.00	20.00	6.00	-94.67
17	-7.50	31.50	40.00	6.00	-378.67
18	42.38	-14.38	57.50	5.00	-738.96
19	5.33	35.67	26.67	5.00	56.89
20	6.43	6.57	53.42	4.29	1016.67
21	56.75	-32.75	65.50	8.00	-1284.71
22	-24.00	31.00	72.00	3.00	-278.67
23	58.00	17.00	42.50	5.00	-166.31
24	5.00	9.00	27.00	5.00	-14.44
25	81.40	-18.40	154.50	9.00	-1809.83
26	12.29	5.71	28.57	6.00	79.24
27	22.00	27.00	60.00	5.00	-285.46
28	37.67	15.33	30.00	0.00	-66.22
29	18.67	-10.67	40.00	0.00	-393.33
30	1.20	20.80	43.20	6.00	-170.40