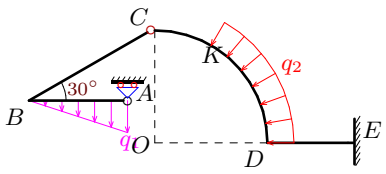
Расчет составной конструкции с распределенными нагрузками

Найти реакции опор плоской составной рамы, находящейся под действием линейно распределенной нагрузки с максимальной интенсивностью q_1 и нагрузки с интенсивностью q_2, равномерно распределенной по дуге окружности. Участок CD представляет собой четверть окружности радиуса R с центром в O.

Кирсанов М.Н. **Решебник. Теоретическая механика** с. 61.

Вариант 1

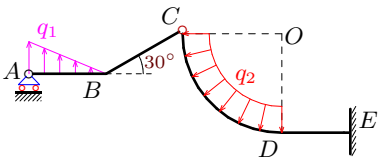
C9.



$q_1 = 7$ кН/м, $R = 8$ м,
$q_2 = 8$ кН/м, $AB = 7$ м,
$BC = 10$ м, $DK = \pi R/3$ м,
$DE = 6$ м.

Вариант 2

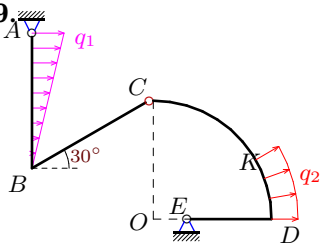
C9.



$q_1 = 6$ кН/м, $R = 9$ м,
$q_2 = 10$ кН/м, $AB = 7$ м,
$BC = 8$ м, $DE = 6$ м.

Вариант 3

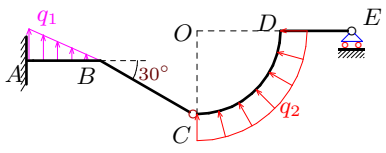
C9.



$q_1 = 11$ кН/м, $R = 7$ м,
$q_2 = 3$ кН/м, $AB = 8$ м,
$BC = 8$ м, $DK = \pi R/6$ м,
$DE = 5$ м.

Вариант 4

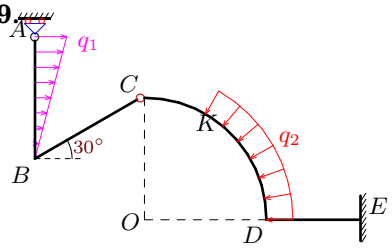
C9.



$q_1 = 6$ кН/м, $R = 7$ м,
$q_2 = 11$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DE = 6$ м.

Вариант 5

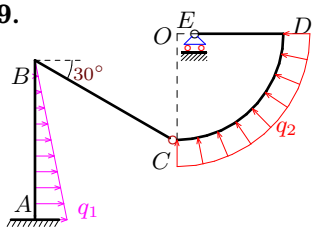
С9.



$q_1 = 7$ кН/м, $R = 8$ м,
$q_2 = 8$ кН/м, $AB = 8$ м,
$BC = 8$ м, $DK = \pi R/3$ м,
$DE = 6$ м.

Вариант 6

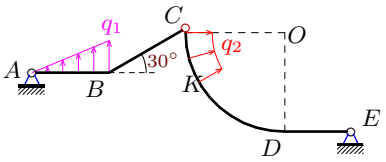
С9.



$q_1 = 5$ кН/м, $R = 6$ м,
$q_2 = 11$ кН/м, $AB = 9$ м,
$BC = 9$ м, $DE = 5$ м.

Вариант 7

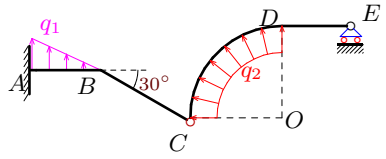
С9.



$q_1 = 12$ кН/м, $R = 9$ м,
$q_2 = 4$ кН/м, $AB = 7$ м,
$BC = 8$ м, $CK = \pi R/6$ м,
$DE = 6$ м.

Вариант 8

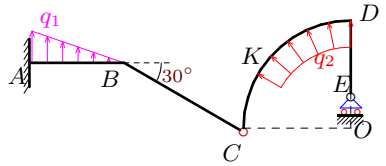
С9.



$q_1 = 7$ кН/м, $R = 8$ м,
$q_2 = 11$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DE = 6$ м.

Вариант 9

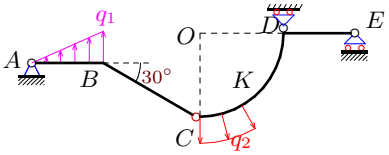
С9.



$q_1 = 8$ кН/м, $R = 7$ м,
$q_2 = 9$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DK = \pi R/3$ м,
$DE = 5$ м.

Вариант 10

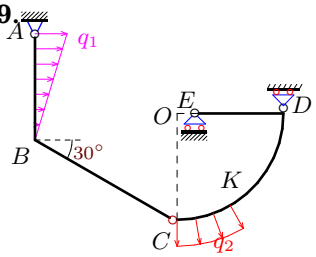
С9.



$q_1 = 12$ кН/м, $R = 7$ м,
$q_2 = 5$ кН/м, $AB = 6$ м,
$BC = 9$ м, $CK = \pi R/6$ м,
$DE = 6$ м.

Вариант 11

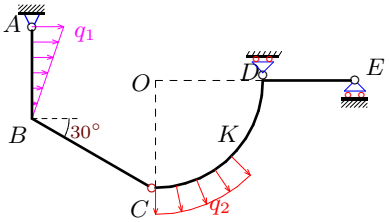
С9.



$q_1 = 10$ кН/м, $R = 6$ м,
$q_2 = 6$ кН/м, $AB = 6$ м,
$BC = 9$ м, $CK = \pi R/6$ м,
$DE = 5$ м.

Вариант 12

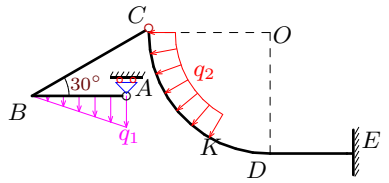
С9.



$q_1 = 10$ кН/м, $R = 7$ м,
$q_2 = 7$ кН/м, $AB = 6$ м,
$BC = 9$ м, $CK = \pi R/4$ м,
$DE = 6$ м.

Вариант 13

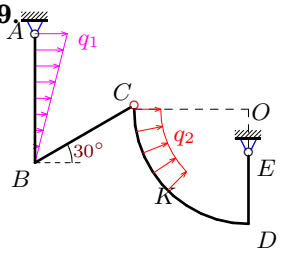
С9.



$q_1 = 8$ кН/м, $R = 9$ м,
$q_2 = 8$ кН/м, $AB = 7$ м,
$BC = 10$ м, $CK = \pi R/3$ м,
$DE = 6$ м.

Вариант 14

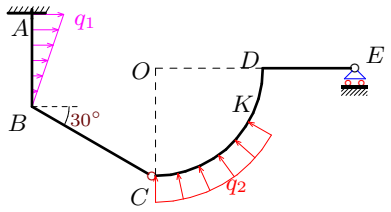
С9.



$q_1 = 10$ кН/м, $R = 8$ м,
$q_2 = 5$ кН/м, $AB = 9$ м,
$BC = 8$ м, $CK = \pi R/4$ м,
$DE = 5$ м.

Вариант 15

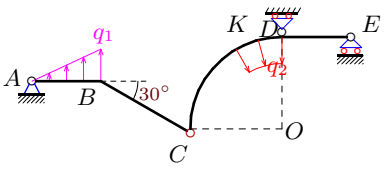
С9.



$q_1 = 8$ кН/м, $R = 7$ м,
$q_2 = 9$ кН/м, $AB = 6$ м,
$BC = 9$ м, $CK = \pi R/3$ м,
$DE = 6$ м.

Вариант 16

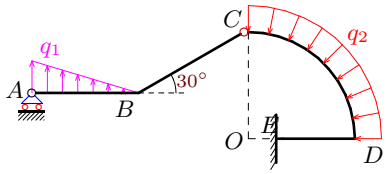
С9.



$q_1 = 12$ кН/м, $R = 8$ м,
$q_2 = 6$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DK = \pi R/6$ м,
$DE = 6$ м.

Вариант 17

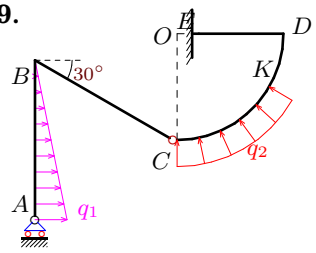
С9.



$q_1 = 4$ кН/м, $R = 7$ м,
$q_2 = 10$ кН/м, $AB = 7$ м,
$BC = 8$ м, $DE = 5$ м.

Вариант 18

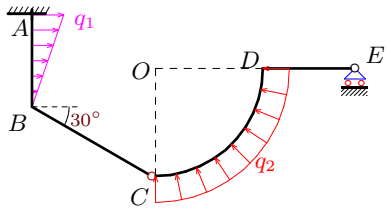
С9.



$q_1 = 6$ кН/м, $R = 6$ м,
$q_2 = 10$ кН/м, $AB = 9$ м,
$BC = 9$ м, $CK = \pi R/3$ м,
$DE = 5$ м.

Вариант 19

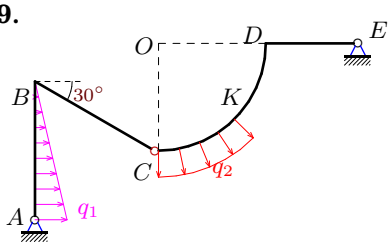
С9.



$q_1 = 6$ кН/м, $R = 7$ м,
$q_2 = 11$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DE = 6$ м.

Вариант 20

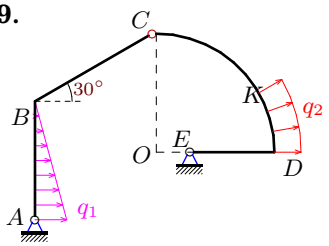
C9.



$q_1 = 9$ кН/м, $R = 7$ м,
$q_2 = 8$ кН/м, $AB = 9$ м,
$BC = 9$ м, $CK = \pi R/4$ м,
$DE = 6$ м.

Вариант 21

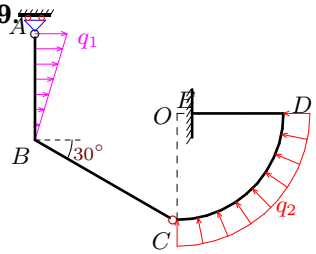
C9.



$q_1 = 10$ кН/м, $R = 7$ м,
$q_2 = 4$ кН/м, $AB = 7$ м,
$BC = 8$ м, $DK = \pi R/6$ м,
$DE = 5$ м.

Вариант 22

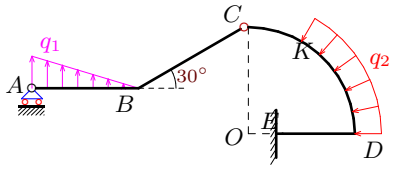
C9.



$q_1 = 4$ кН/м, $R = 6$ м,
$q_2 = 12$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DE = 5$ м.

Вариант 23

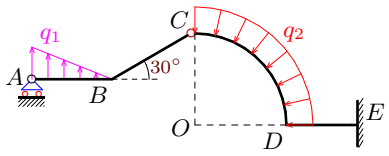
C9.



$q_1 = 6$ кН/м, $R = 7$ м,
$q_2 = 8$ кН/м, $AB = 7$ м,
$BC = 8$ м, $DK = \pi R/3$ м,
$DE = 5$ м.

Вариант 24

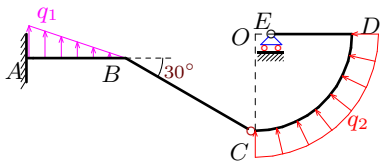
C9.



$q_1 = 5$ кН/м, $R = 8$ м,
$q_2 = 10$ кН/м, $AB = 7$ м,
$BC = 8$ м, $DE = 6$ м.

Вариант 25

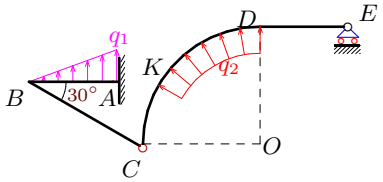
C9.



$q_1 = 5$ кН/м, $R = 6$ м,
$q_2 = 11$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DE = 5$ м.

Вариант 26

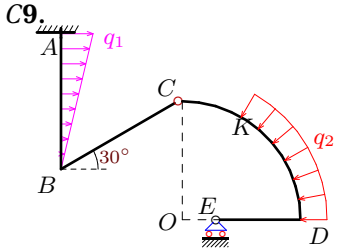
C9.



$q_1 = 9$ кН/м, $R = 8$ м,
$q_2 = 9$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DK = \pi R/3$ м,
$DE = 6$ м.

Вариант 27

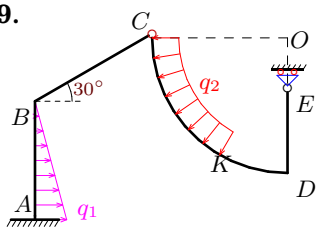
C9.



$q_1 = 7$ кН/м, $R = 7$ м,
$q_2 = 7$ кН/м, $AB = 8$ м,
$BC = 8$ м, $DK = \pi R/3$ м,
$DE = 5$ м.

Вариант 28

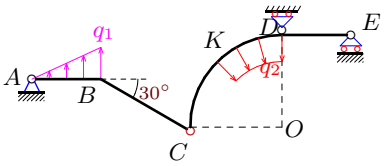
C9.



$q_1 = 8$ кН/м, $R = 8$ м,
$q_2 = 7$ кН/м, $AB = 7$ м,
$BC = 8$ м, $CK = \pi R/3$ м,
$DE = 5$ м.

Вариант 29

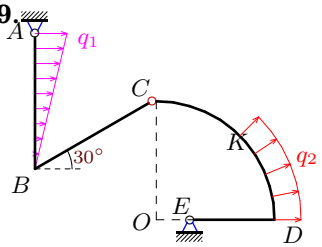
C9.



$q_1 = 11$ кН/м, $R = 8$ м,
$q_2 = 7$ кН/м, $AB = 6$ м,
$BC = 9$ м, $DK = \pi R/4$ м,
$DE = 6$ м.

Вариант 30

C9.



$q_1 = 8$ кН/м, $R = 7$ м,
$q_2 = 6$ кН/м, $AB = 8$ м,
$BC = 8$ м, $DK = \pi R/4$ м,
$DE = 5$ м.

Ответы

	X_A	Y_A	Y_D	X_E	Y_E	M_A
1	–	58.932	–	55.426	−2.432	–
2	–	−17.482	–	90.000	86.482	–
3	−50.757	20.837	–	−3.743	−23.650	–
4	77.000	−53.538	–	–	−41.462	−179.726
5	–	−5.389	–	27.426	37.389	–
6	43.500	330.000	–	–	−396.000	2342.595
7	−30.209	−36.604	–	12.209	−10.219	–
8	88.000	−58.714	–	–	−50.286	−166.239
9	31.500	−24.000	–	–	−54.560	93.750
10	−4.689	−24.031	6.514	–	−0.982	–
11	−34.823	14.195	5.027	–	−1.222	–
12	−44.352	27.032	−0.242	–	7.858	–
13	–	67.351	–	62.354	−3.351	–
14	41.799	−43.156	–	−115.083	31.441	–
15	7.500	−37.598	–	–	−16.962	−10.298
16	−6.431	−23.463	−5.253	–	16.716	–
17	–	−11.655	–	70.000	67.655	–
18	–	5.196	–	3.000	−57.158	–
19	59.000	−35.538	–	–	−41.462	495.505
20	1378.586	803.721	–	−1435.48	−764.123	–
21	−33.420	−9.280	–	−15.580	5.528	–
22	–	−13.087	–	60.000	−58.913	–
23	–	−17.482	–	48.497	24.482	–
24	–	−14.568	–	80.000	77.068	–
25	66.000	315.000	–	–	−396.000	4819.095
26	36.000	−53.723	–	–	−35.631	168.053
27	14.435	−124.023	–	–	148.523	−764.185
28	20.497	0.000	–	–	28.000	−468.138
29	−16.402	−18.080	4.785	–	19.893	–
30	−40.423	17.180	–	−21.275	−29.482	–