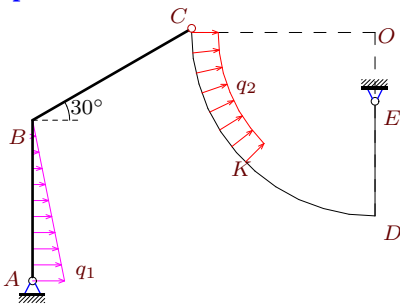
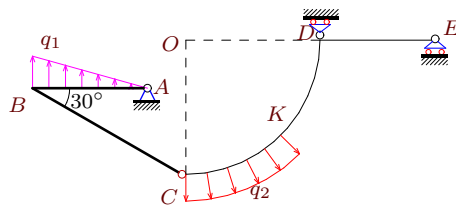
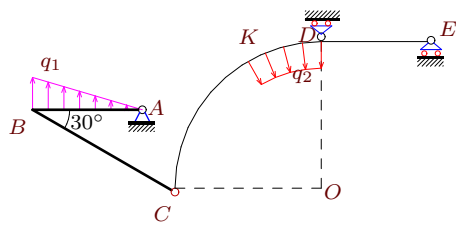
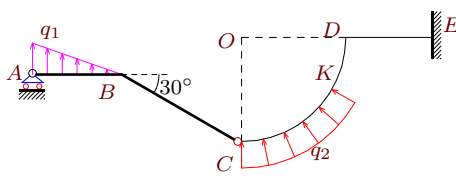
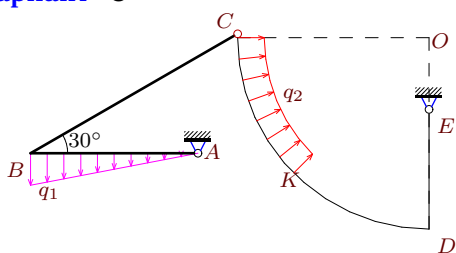


Составная рама с распределенной нагрузкой

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. **Решбник. Теоретическая механика**/Под ред. А. И. Кириллова. – М.: ФИЗМАТЛИТ, 2002. – 384 с. (с. 61.)

<p>Вариант 1</p> 	$q_1 = 9 \text{ кН/м}, \quad R = 8 \text{ м},$ $q_2 = 6 \text{ кН/м}, \quad AB = 7 \text{ м},$ $BC = 8 \text{ м}, \quad CK = \pi R/4 \text{ м},$ $DE = 5 \text{ м}.$
<p>Вариант 2</p> 	$q_1 = 10 \text{ кН/м}, \quad R = 7 \text{ м},$ $q_2 = 7 \text{ кН/м}, \quad AB = 6 \text{ м},$ $BC = 9 \text{ м}, \quad CK = \pi R/4 \text{ м},$ $DE = 6 \text{ м}.$
<p>Вариант 3</p> 	$q_1 = 12 \text{ кН/м}, \quad R = 8 \text{ м},$ $q_2 = 6 \text{ кН/м}, \quad AB = 6 \text{ м},$ $BC = 9 \text{ м}, \quad DK = \pi R/6 \text{ м},$ $DE = 6 \text{ м}.$
<p>Вариант 4</p> 	$q_1 = 7 \text{ кН/м}, \quad R = 7 \text{ м},$ $q_2 = 10 \text{ кН/м}, \quad AB = 6 \text{ м},$ $BC = 9 \text{ м}, \quad CK = \pi R/3 \text{ м},$ $DE = 6 \text{ м}.$

Вариант 5

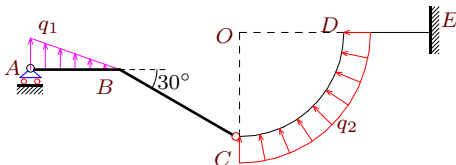
$$q_1 = 9 \text{ кН/м}, \quad R = 8 \text{ м},$$

$$q_2 = 6 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 10 \text{ м}, \quad CK = \pi R/4 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

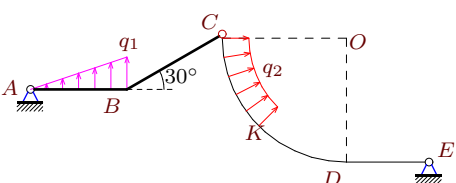
Вариант 6

$$q_1 = 5 \text{ кН/м}, \quad R = 7 \text{ м},$$

$$q_2 = 12 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DE = 6 \text{ м}.$$

9.1

Вариант 7

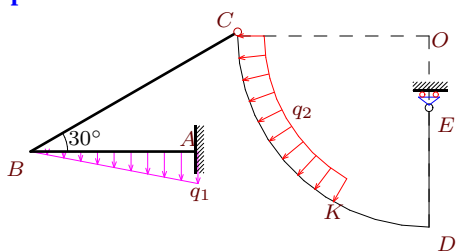
$$q_1 = 10 \text{ кН/м}, \quad R = 9 \text{ м},$$

$$q_2 = 6 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad CK = \pi R/4 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 8

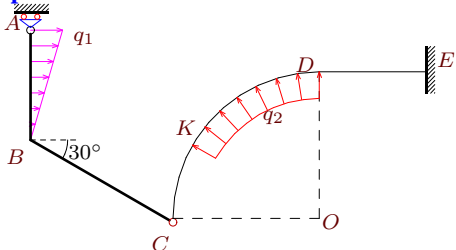
$$q_1 = 8 \text{ кН/м}, \quad R = 8 \text{ м},$$

$$q_2 = 7 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 10 \text{ м}, \quad CK = \pi R/3 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

Вариант 9

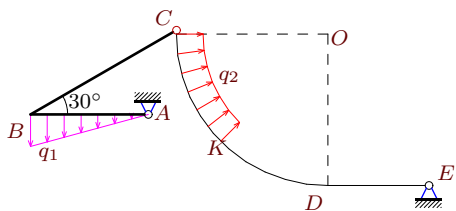
$$q_1 = 8 \text{ кН/м}, \quad R = 8 \text{ м},$$

$$q_2 = 10 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DK = \pi R/3 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 10

$$q_1 = 11 \text{ кН/м}, \quad R = 9 \text{ м},$$

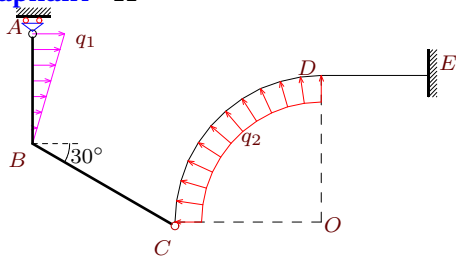
$$q_2 = 5 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 10 \text{ м}, \quad CK = \pi R/4 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 11



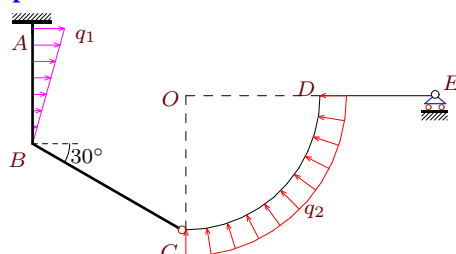
$$q_1 = 6 \text{ кН/м}, \quad R = 8 \text{ м},$$

$$q_2 = 12 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DE = 6 \text{ м}.$$

9.1

Вариант 12



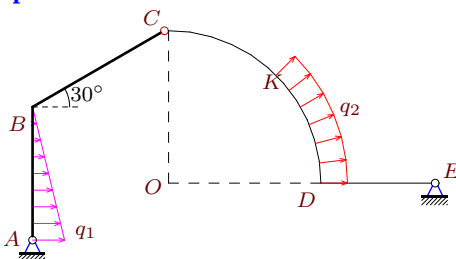
$$q_1 = 6 \text{ кН/м}, \quad R = 7 \text{ м},$$

$$q_2 = 11 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DE = 6 \text{ м}.$$

9.1

Вариант 13



$$q_1 = 10 \text{ кН/м}, \quad R = 8 \text{ м},$$

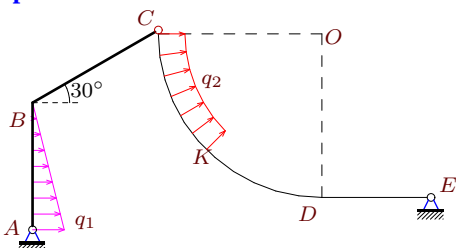
$$q_2 = 5 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad DK = \pi R/4 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 14



$$q_1 = 11 \text{ кН/м}, \quad R = 9 \text{ м},$$

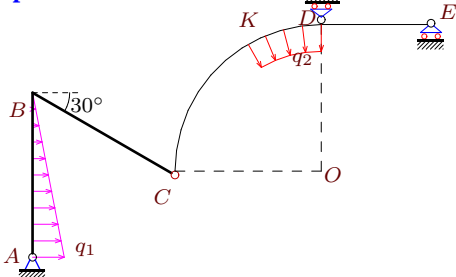
$$q_2 = 5 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad CK = \pi R/4 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 15



$$q_1 = 12 \text{ кН/м}, \quad R = 8 \text{ м},$$

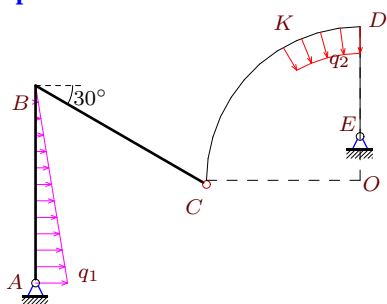
$$q_2 = 6 \text{ кН/м}, \quad AB = 9 \text{ м},$$

$$BC = 9 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 16



$$q_1 = 12 \text{ кН/м}, \quad R = 7 \text{ м},$$

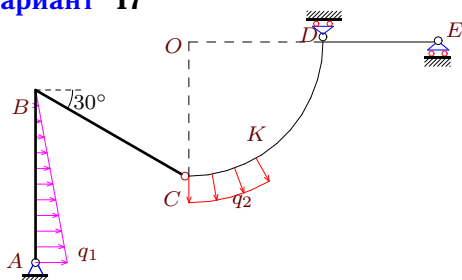
$$q_2 = 5 \text{ кН/м}, \quad AB = 9 \text{ м},$$

$$BC = 9 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

Вариант 17



$$q_1 = 11 \text{ кН/м}, \quad R = 7 \text{ м},$$

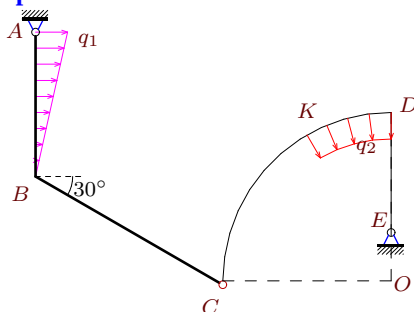
$$q_2 = 6 \text{ кН/м}, \quad AB = 9 \text{ м},$$

$$BC = 9 \text{ м}, \quad CK = \pi R/6 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 18



$$q_1 = 11 \text{ кН/м}, \quad R = 7 \text{ м},$$

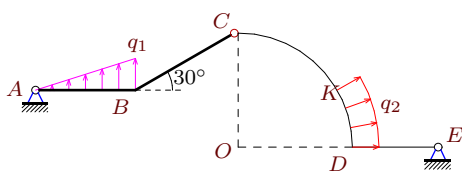
$$q_2 = 6 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

Вариант 19



$$q_1 = 12 \text{ кН/м}, \quad R = 8 \text{ м},$$

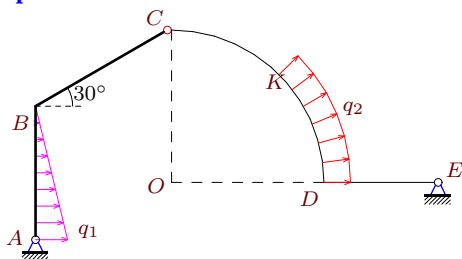
$$q_2 = 3 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 20



$$q_1 = 10 \text{ кН/м}, \quad R = 8 \text{ м},$$

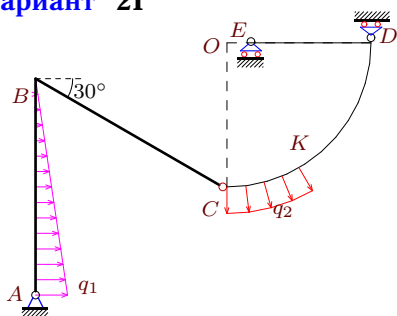
$$q_2 = 5 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad DK = \pi R/4 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

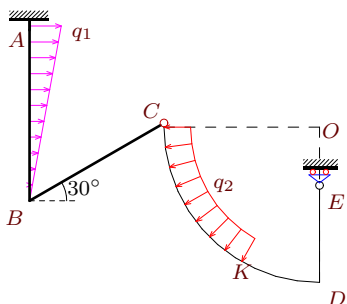
Вариант 21



$$\begin{aligned}
 q_1 &= 11 \text{ кН/м}, & R &= 6 \text{ м}, \\
 q_2 &= 5 \text{ кН/м}, & AB &= 9 \text{ м}, \\
 BC &= 9 \text{ м}, & CK &= \pi R/6 \text{ м}, \\
 DE &= 5 \text{ м}.
 \end{aligned}$$

9.1

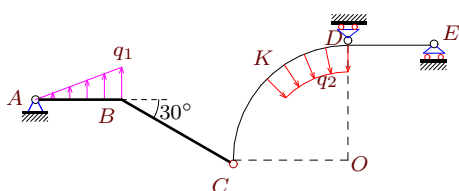
Вариант 22



$$\begin{aligned}
 q_1 &= 8 \text{ кН/м}, & R &= 8 \text{ м}, \\
 q_2 &= 7 \text{ кН/м}, & AB &= 9 \text{ м}, \\
 BC &= 8 \text{ м}, & CK &= \pi R/3 \text{ м}, \\
 DE &= 5 \text{ м}.
 \end{aligned}$$

9.1

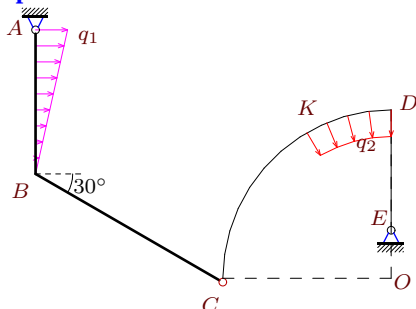
Вариант 23



$$\begin{aligned}
 q_1 &= 11 \text{ кН/м}, & R &= 8 \text{ м}, \\
 q_2 &= 7 \text{ кН/м}, & AB &= 6 \text{ м}, \\
 BC &= 9 \text{ м}, & DK &= \pi R/4 \text{ м}, \\
 DE &= 6 \text{ м}.
 \end{aligned}$$

9.1

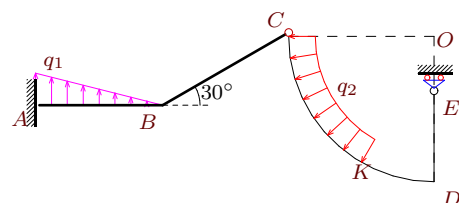
Вариант 24



$$\begin{aligned}
 q_1 &= 11 \text{ кН/м}, & R &= 7 \text{ м}, \\
 q_2 &= 6 \text{ кН/м}, & AB &= 6 \text{ м}, \\
 BC &= 9 \text{ м}, & DK &= \pi R/6 \text{ м}, \\
 DE &= 5 \text{ м}.
 \end{aligned}$$

9.1

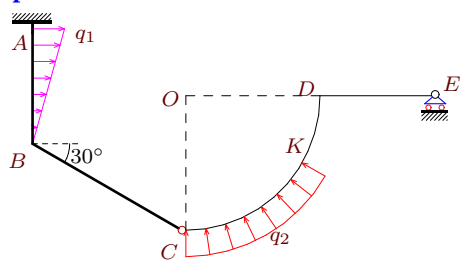
Вариант 25



$$\begin{aligned}
 q_1 &= 8 \text{ кН/м}, & R &= 8 \text{ м}, \\
 q_2 &= 7 \text{ кН/м}, & AB &= 7 \text{ м}, \\
 BC &= 8 \text{ м}, & CK &= \pi R/3 \text{ м}, \\
 DE &= 5 \text{ м}.
 \end{aligned}$$

9.1

Вариант 26



$$q_1 = 8 \text{ кН/м}, \quad R = 7 \text{ м},$$

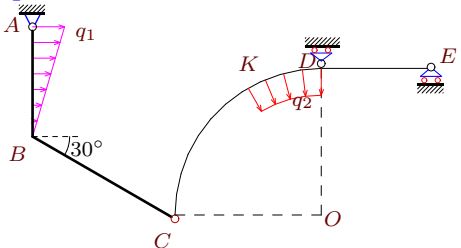
$$q_2 = 9 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad CK = \pi R/3 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 27



$$q_1 = 13 \text{ кН/м}, \quad R = 8 \text{ м},$$

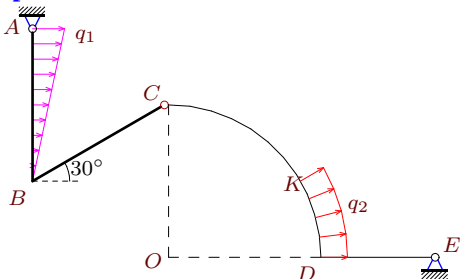
$$q_2 = 5 \text{ кН/м}, \quad AB = 6 \text{ м},$$

$$BC = 9 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 28



$$q_1 = 12 \text{ кН/м}, \quad R = 8 \text{ м},$$

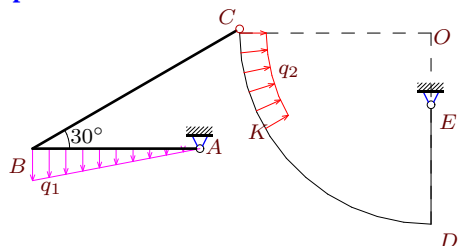
$$q_2 = 3 \text{ кН/м}, \quad AB = 8 \text{ м},$$

$$BC = 8 \text{ м}, \quad DK = \pi R/6 \text{ м},$$

$$DE = 6 \text{ м}.$$

9.1

Вариант 29



$$q_1 = 12 \text{ кН/м}, \quad R = 8 \text{ м},$$

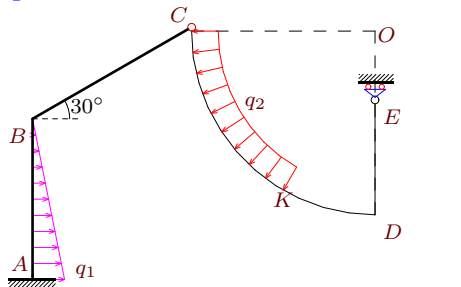
$$q_2 = 3 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 10 \text{ м}, \quad CK = \pi R/6 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

Вариант 30



$$q_1 = 8 \text{ кН/м}, \quad R = 8 \text{ м},$$

$$q_2 = 7 \text{ кН/м}, \quad AB = 7 \text{ м},$$

$$BC = 8 \text{ м}, \quad CK = \pi R/3 \text{ м},$$

$$DE = 5 \text{ м}.$$

9.1

Составная рама с распределенной нагрузкой

9.1

24.03.2005

	X_A	Y_A	Y_D	X_E	Y_E	$M_{A(E)}$
1	-32.58	-12.32	-	-32.86	-1.73	-
2	-14.35	-60.88	125.24	-	-59.71	-
3	-6.43	-100.12	173.63	-	-85.50	-
4	-	-17.95	-	35.00	-63.66	827.66
5	-29.90	29.98	-	-4.03	-12.54	-
6	-	-12.82	-	84.00	-86.17	1120.27
7	-46.17	-36.53	-	7.98	-14.28	-
8	48.49	28.00	-	-	28.00	-307.82
9	-	-26.17	-	16.00	-43.10	177.26
10	-36.71	36.16	-	4.89	-10.84	-
11	-	-19.63	-	78.00	-76.37	925.18
12	59.00	-35.53	-	-	-41.46	495.50
13	-34.96	-11.73	-	-28.31	0.01	-
14	-43.71	-21.23	-	-26.61	8.05	-
15	-60.43	-24.49	81.16	-	-32.66	-
16	21.86	23.01	-	-80.55	-5.51	-
17	-55.12	-22.30	87.25	-	-43.95	-
18	-28.79	2.80	-	-9.82	18.19	-
19	-20.13	-33.71	-	8.13	-11.50	-
20	-34.96	-11.73	-	-28.31	0.01	-
21	-53.51	-21.37	-2.45	-	38.82	-
22	12.49	0.00	-	-	28.00	134.48
23	-16.40	-18.08	4.78	-	19.89	-
24	-28.79	2.80	-	-9.82	18.19	-
25	48.49	-28.00	-	-	28.00	-259.32
26	7.50	-37.59	-	-	-16.96	-10.29
27	-44.35	17.22	-20.19	-	22.96	-
28	3614.90	-2096.30	-	-3674.90	2093.08	-
29	-36.18	51.07	-	24.18	-12.28	-
30	20.49	-0.00	-	-	28.00	-468.13