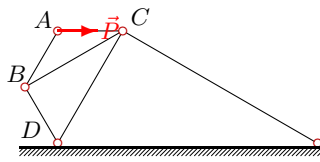


Простая стержневая система.

Кирсанов М.Н. **Решебник. Теоретическая механика** с. 14.

Вариант 1

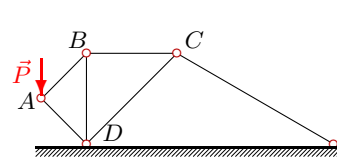
C1.



$P = 1 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 2

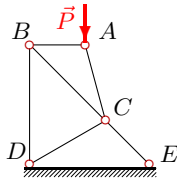
C1.



$P = 2 \text{ кН}$,
 $\angle ABD = 45^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 30^\circ$.

Вариант 3

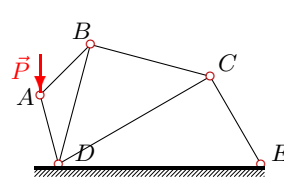
C1.



$P = 3 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 75^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 45^\circ$.

Вариант 4

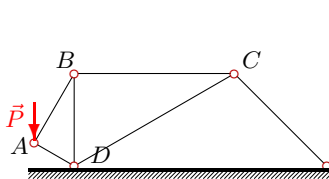
C1.



$P = 4 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 60^\circ$.

Вариант 5

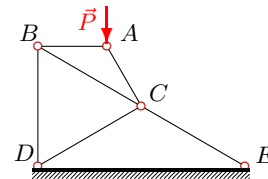
C1.



$P = 5 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 45^\circ$.

Вариант 6

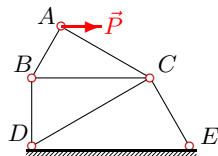
C1.



$P = 6 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 30^\circ$.

Вариант 7

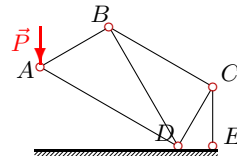
C1.



$P = 7 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 60^\circ$.

Вариант 8

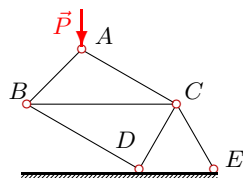
C1.



$P = 8 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 90^\circ$.

Вариант 9

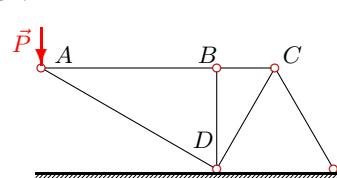
C1.



$P = 9 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 10

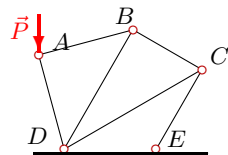
C1.



$P = 10 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 11

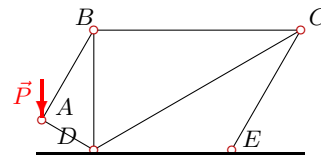
C1.



$P = 11 \text{ кН}$,
 $\angle ABD = 45^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 12

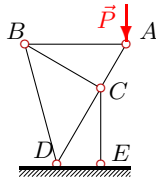
C1.



$P = 12 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 13

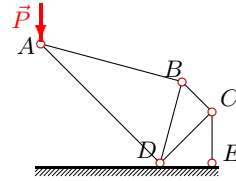
C1.



$P = 13 \text{ кН}$,
 $\angle ACB = 90^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 90^\circ$.

Вариант 14

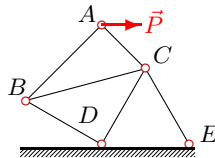
C1.



$P = 14 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 90^\circ$.

Вариант 15

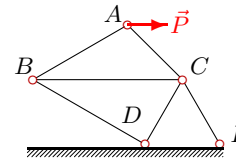
C1.



$P = 15 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 16

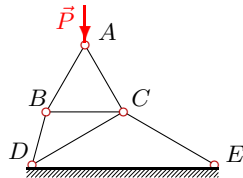
C1.



$P = 16 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 17

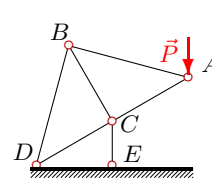
C1.



$P = 17 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 30^\circ$.

Вариант 18

C1.



$P = 18 \text{ кН}$,
 $\angle ACB = 90^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 90^\circ$.

Вариант 19

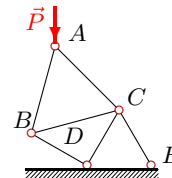
C1.



$P = 19 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 75^\circ$,
 $\angle CED = 15^\circ$.

Вариант 20

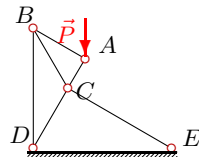
C1.



$P = 20 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 21

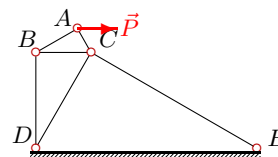
C1.



$P = 21 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 22

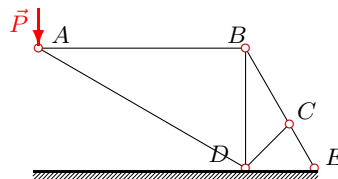
C1.



$P = 22 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 23

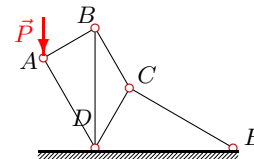
C1.



$P = 23 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 105^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 60^\circ$.

Вариант 24

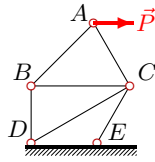
C1.



$P = 24 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 25

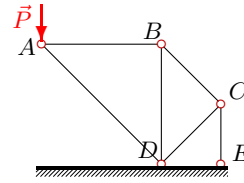
C1.



$P = 25 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 26

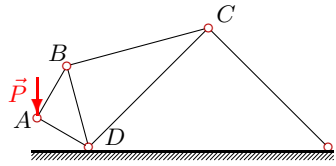
C1.



$P = 26 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 90^\circ$.

Вариант 27

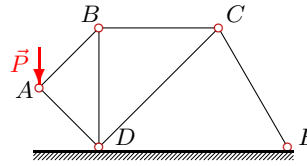
C1.



$P = 27 \text{ кН}$,
 $\angle ABD = 45^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 45^\circ$.

Вариант 28

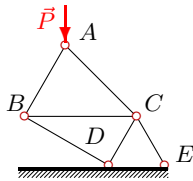
C1.



$P = 28 \text{ кН}$,
 $\angle ABD = 45^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 60^\circ$.

Вариант 29

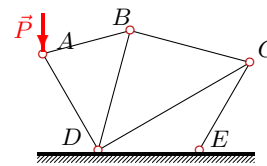
C1.



$P = 29 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 30

C1.



$P = 30 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Отвѣты

	S_{AB}	S_{AC}	S_{AD}	S_{BC}	S_{BD}	S_{CD}	S_{CE}
1	0.000	-1.000	—	0.000	0.000	0.500	-0.866
2	1.414	—	-1.414	1.000	-1.000	-0.518	0.732
3	-0.804	-3.106	—	1.137	-0.804	-1.608	-1.969
4	1.195	—	-3.266	0.598	-1.035	-0.423	0.423
5	4.330	—	-2.500	2.165	-3.750	-1.585	1.121
6	-3.464	-6.928	—	4.000	-2.000	-4.000	-4.000
7	3.500	-6.062	—	-1.750	3.031	4.547	-6.125
8	8.000	—	-8.000	16.000	-13.856	-27.713	32.000
9	-8.069	-6.588	—	15.588	-11.412	-11.785	7.981
10	17.321	—	-20.000	17.321	0.000	-17.321	17.321
11	2.847	—	-10.625	2.013	-2.013	-4.026	3.487
12	10.392	—	-6.000	5.196	-9.000	-9.000	5.196
13	7.506	-15.011	—	-10.253	5.307	2.747	-20.506
14	19.799	—	-27.046	22.862	-11.431	-22.862	32.332
15	10.607	-10.607	—	-14.489	7.500	19.330	-23.660
16	11.713	-8.282	—	-20.287	11.713	22.762	-29.525
17	-9.815	-9.815	—	2.630	-8.800	-7.185	-9.815
18	22.045	-24.588	—	-31.177	22.045	-6.588	-36.000
19	15.513	—	-5.678	7.757	-13.435	-3.878	6.718
20	-16.330	-5.977	—	22.307	-20.000	-23.094	11.547
21	10.500	-18.187	—	-18.187	10.500	-27.280	-15.750
22	19.053	-11.000	—	-16.500	9.526	2.750	-23.816
23	39.837	—	-46.000	79.674	-69.000	-0.000	79.674
24	12.000	—	-20.785	20.785	-24.000	10.392	18.000
25	22.414	-18.301	—	-15.849	15.849	59.151	-52.452
26	26.000	—	-36.770	36.770	-26.000	-36.770	52.000
27	23.383	—	-13.500	16.534	-16.534	-14.319	8.267
28	19.799	—	-19.799	14.000	-14.000	-12.552	10.249
29	-21.229	-15.012	—	42.459	-36.771	-37.973	25.716
30	15.529	—	-30.000	13.449	-7.765	-25.981	19.019