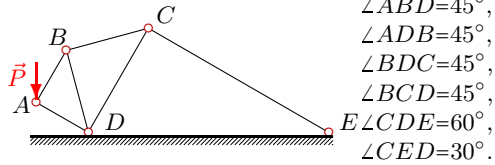


Простая стержневая система.

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

Вариант 1

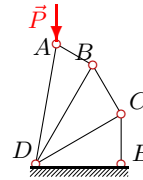
C1.



$P = 1 \text{ кН},$
 $\angle ABD = 45^\circ,$
 $\angle ADB = 45^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 45^\circ,$
 $\angle CDE = 60^\circ,$
 $\angle CED = 30^\circ.$

Вариант 2

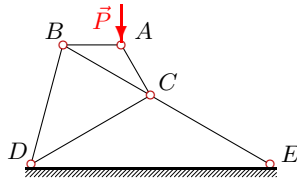
C1.



$P = 2 \text{ кН},$
 $\angle ABD = 90^\circ,$
 $\angle ADB = 20^\circ,$
 $\angle BDC = 30^\circ,$
 $\angle BCD = 90^\circ,$
 $\angle CDE = 30^\circ,$
 $\angle CED = 90^\circ.$

Вариант 3

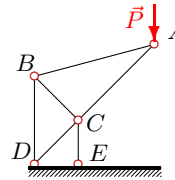
C1.



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

Вариант 4

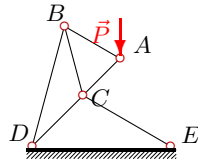
C1.



$P = 4 \text{ кН},$
 $\angle ACB = 90^\circ,$
 $\angle ABC = 60^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 90^\circ,$
 $\angle CDE = 45^\circ,$
 $\angle CED = 90^\circ.$

Вариант 5

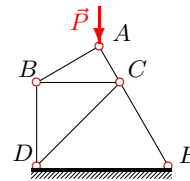
C1.



$P = 5 \text{ кН},$
 $\angle ACB = 60^\circ,$
 $\angle ABC = 45^\circ,$
 $\angle BDC = 30^\circ,$
 $\angle BCD = 120^\circ,$
 $\angle CDE = 45^\circ,$
 $\angle CED = 30^\circ.$

Вариант 6

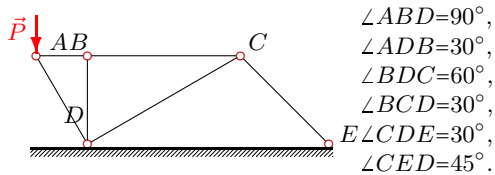
C1.



$P = 6 \text{ кН},$
 $\angle ACB = 60^\circ,$
 $\angle ABC = 30^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 45^\circ,$
 $\angle CDE = 45^\circ,$
 $\angle CED = 60^\circ.$

Вариант 7

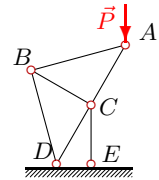
C1.



$P = 7 \text{ кН},$
 $\angle ABD = 90^\circ,$
 $\angle ADB = 30^\circ,$
 $\angle BDC = 60^\circ,$
 $\angle BCD = 30^\circ,$
 $\angle CDE = 30^\circ,$
 $\angle CED = 45^\circ.$

Вариант 8

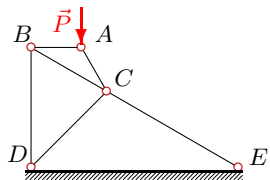
C1.



$P = 8 \text{ кН},$
 $\angle ACB = 90^\circ,$
 $\angle ABC = 45^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 90^\circ,$
 $\angle CDE = 60^\circ,$
 $\angle CED = 90^\circ.$

Вариант 9

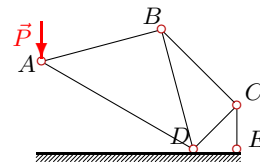
C1.



$P = 9 \text{ кН},$
 $\angle ACB = 30^\circ,$
 $\angle ABC = 30^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 75^\circ,$
 $\angle CDE = 45^\circ,$
 $\angle CED = 30^\circ.$

Вариант 10

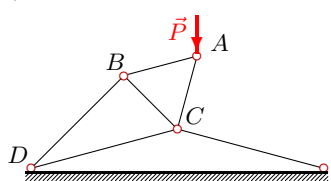
C1.



$P = 10 \text{ кН},$
 $\angle ABD = 90^\circ,$
 $\angle ADB = 45^\circ,$
 $\angle BDC = 60^\circ,$
 $\angle BCD = 90^\circ,$
 $\angle CDE = 45^\circ,$
 $\angle CED = 90^\circ.$

Вариант 11

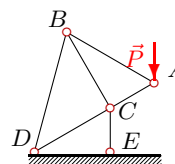
C1.



$P = 11 \text{ кН},$
 $\angle ACB = 60^\circ,$
 $\angle ABC = 60^\circ,$
 $\angle BDC = 30^\circ,$
 $\angle BCD = 60^\circ,$
 $\angle CDE = 15^\circ,$
 $\angle CED = 15^\circ.$

Вариант 12

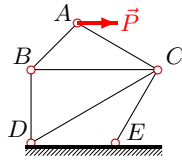
C1.



$P = 12 \text{ кН},$
 $\angle ACB = 90^\circ,$
 $\angle ABC = 30^\circ,$
 $\angle BDC = 45^\circ,$
 $\angle BCD = 90^\circ,$
 $\angle CDE = 30^\circ,$
 $\angle CED = 90^\circ.$

Вариант 13

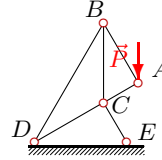
C1.



$P = 13 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 14

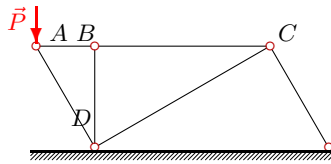
C1.



$P = 14 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 60^\circ$.

Вариант 15

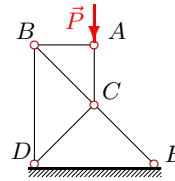
C1.



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

Вариант 16

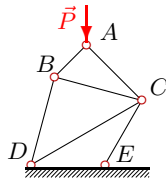
C1.



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

Вариант 17

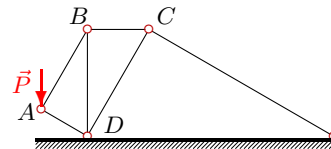
C1.



$P = 17 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 18

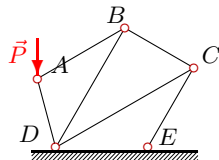
C1.



$P = 18 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 19

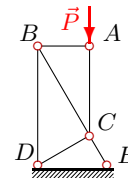
C1.



$P = 19 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 20

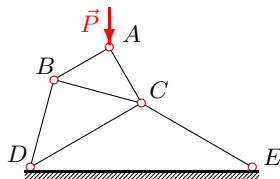
C1.



$P = 20 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 60^\circ$.

Вариант 21

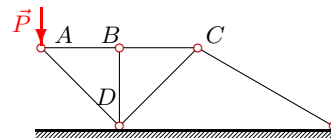
C1.



$P = 21 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 30^\circ$.

Вариант 22

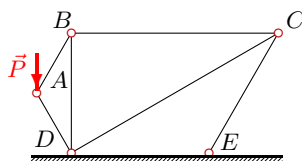
C1.



$P = 22 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 30^\circ$.

Вариант 23

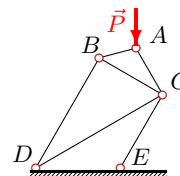
C1.



$P = 23 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 24

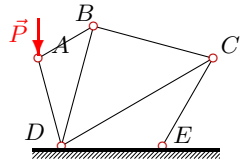
C1.



$P = 24 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 25

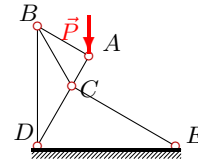
C1.



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

Вариант 26

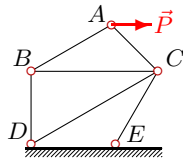
C1.



$P = 26 \text{ кН}$,
 $\angle ACB = 60^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 27

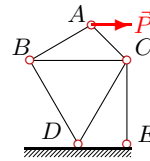
C1.



$P = 27 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 28

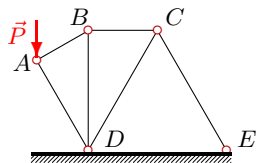
C1.



$P = 28 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 60^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 90^\circ$.

Вариант 29

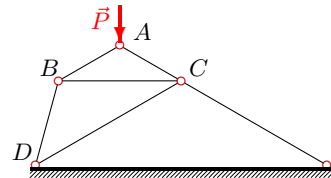
C1.



$P = 29 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 30

C1.



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

Ответы

	S_{AB}	S_{AC}	S_{AD}	S_{BC}	S_{BD}	S_{CD}	S_{CE}
1	0.866	—	-0.500	0.612	-0.612	-0.433	0.433
2	-0.370	—	-1.843	-0.427	0.213	0.246	-0.493
3	-1.732	-3.464	—	1.732	-0.897	-2.000	-2.268
4	5.657	-7.727	—	-7.727	6.928	0.000	-10.928
5	3.660	-4.483	—	-7.071	5.176	-9.659	-6.340
6	-3.000	-5.196	—	2.598	-1.500	-2.329	-3.294
7	4.041	—	-8.083	4.041	0.000	-2.959	2.092
8	5.657	-10.928	—	-8.000	5.657	2.928	-16.000
9	-5.196	-10.392	—	6.000	-3.000	-5.379	-4.392
10	12.247	—	-13.660	24.495	-21.213	-24.495	34.641
11	3.287	-12.269	—	-1.644	2.847	-26.182	-24.097
12	12.000	-12.000	—	-16.392	8.485	-2.536	-18.928
13	6.729	-9.517	—	-4.758	4.758	27.275	-21.242
14	12.124	-7.000	—	-21.000	12.124	-17.500	-18.187
15	8.660	—	-17.321	8.660	0.000	-7.500	4.330
16	0.000	-16.000	—	-0.000	0.000	-11.314	-11.314
17	-12.021	-12.021	—	6.010	-10.410	11.611	-14.722
18	15.588	—	-9.000	7.794	-13.500	-3.897	6.750
19	5.091	—	-17.035	2.546	-4.409	-5.091	4.409
20	0.000	-20.000	—	-0.000	0.000	-10.000	-17.321
21	-10.500	-18.187	—	7.425	-7.425	-12.719	-14.938
22	22.000	—	-31.113	22.000	0.000	-11.388	16.105
23	13.279	—	-13.279	6.640	-11.500	-11.500	6.640
24	-12.423	-24.000	—	8.785	-8.785	24.000	-32.785
25	6.699	—	-22.414	4.737	-4.737	-9.151	6.699
26	13.000	-22.517	—	-22.517	13.000	-33.775	-19.500
27	19.765	-13.976	—	-17.117	9.883	56.648	-44.117
28	20.497	-14.494	—	-23.668	11.834	67.834	-68.995
29	14.500	—	-25.115	12.557	-7.250	-12.557	12.557
30	-30.000	-30.000	—	21.962	-15.529	-12.679	-17.321