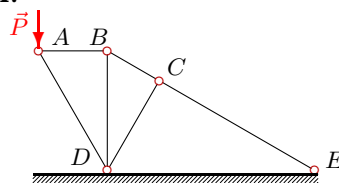


Простая стержневая система.

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

Вариант 1

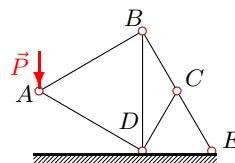
C1.



$P = 1 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 2

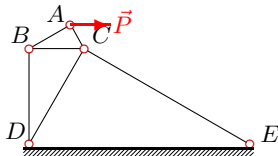
C1.



$P = 2 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 3

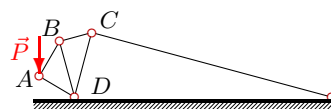
C1.



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

Вариант 4

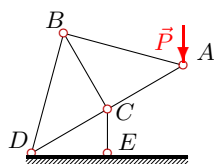
C1.



$P = 4 \text{ кН}$,
 $\angle ABD = 45^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 75^\circ$,
 $\angle CED = 15^\circ$.

Вариант 5

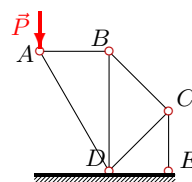
C1.



$P = 5 \text{ кН}$,
 $\angle ACB = 90^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 90^\circ$.

Вариант 6

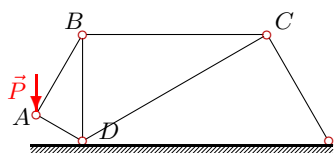
C1.



$P = 6 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 30^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 90^\circ$.

Вариант 7

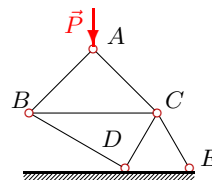
C1.



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

Вариант 8

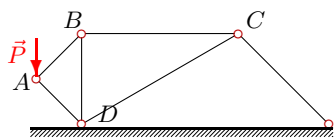
C1.



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

Вариант 9

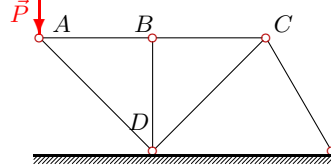
C1.



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

Вариант 10

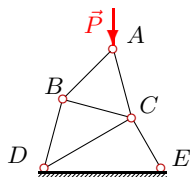
C1.



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

Вариант 11

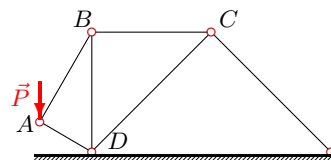
C1.



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

Вариант 12

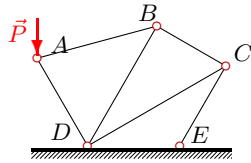
C1.



$P = 12 \text{ кН}$,
 $\angle ABD = 30^\circ$,
 $\angle ADB = 60^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 45^\circ$.

Вариант 13

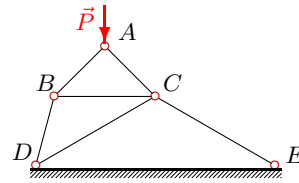
C1.



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

Вариант 14

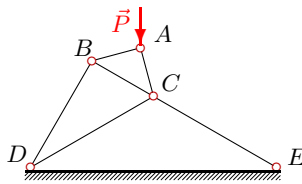
C1.



$P = 14 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 30^\circ$.

Вариант 15

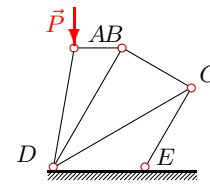
C1.



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

Вариант 16

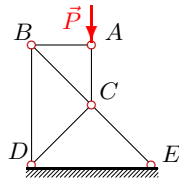
C1.



$P = 16 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 20^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 120^\circ$.

Вариант 17

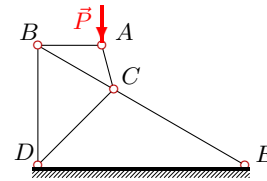
C1.



$P = 17 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 90^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 45^\circ$.

Вариант 18

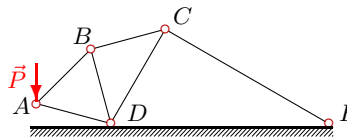
C1.



$P = 18 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 75^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 30^\circ$.

Вариант 19

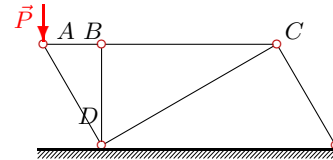
C1.



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

Вариант 20

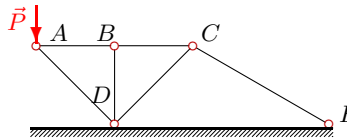
C1.



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

Вариант 21

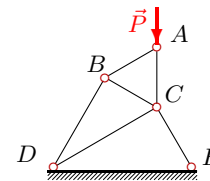
C1.



$P = 21 \text{ кН}$,
 $\angle ABD = 90^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 45^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 30^\circ$.

Вариант 22

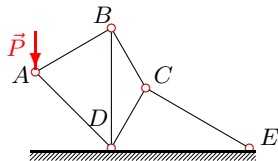
C1.



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

Вариант 23

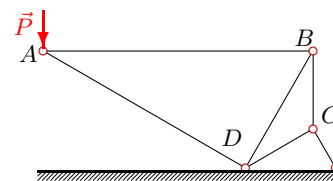
C1.



$P = 23 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 45^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 30^\circ$.

Вариант 24

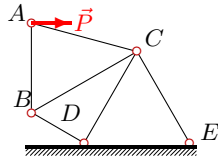
C1.



$P = 24 \text{ кН}$,
 $\angle ABD = 60^\circ$,
 $\angle ADB = 90^\circ$,
 $\angle BDC = 30^\circ$,
 $\angle BCD = 120^\circ$,
 $\angle CDE = 30^\circ$,
 $\angle CED = 60^\circ$.

Вариант 25

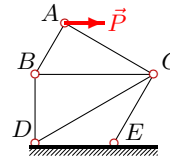
C1.



$P = 25 \text{ кН}$,
 $\angle ACB = 45^\circ$,
 $\angle ABC = 60^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 30^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 26

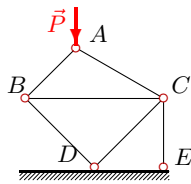
C1.



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

Вариант 27

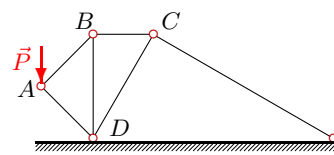
C1.



$P = 27 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 45^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 45^\circ$,
 $\angle CDE = 45^\circ$,
 $\angle CED = 90^\circ$.

Вариант 28

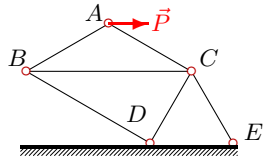
C1.



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

Вариант 29

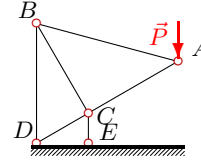
C1.



$P = 29 \text{ кН}$,
 $\angle ACB = 30^\circ$,
 $\angle ABC = 30^\circ$,
 $\angle BDC = 90^\circ$,
 $\angle BCD = 60^\circ$,
 $\angle CDE = 60^\circ$,
 $\angle CED = 60^\circ$.

Вариант 30

C1.



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

Отвѣты

| | S_{AB} | S_{AC} | S_{AD} | S_{BC} | S_{BD} | S_{CD} | S_{CE} |
|----|----------|----------|----------|----------|----------|----------|----------|
| 1 | 0.577 | — | -1.155 | 0.667 | -0.333 | 0.000 | 0.667 |
| 2 | 2.000 | — | -2.000 | 3.464 | -4.000 | -0.000 | 3.464 |
| 3 | 2.598 | -1.500 | — | -2.250 | 1.299 | 0.375 | -3.248 |
| 4 | 3.464 | — | -2.000 | 2.449 | -2.449 | -1.225 | 2.121 |
| 5 | 6.124 | -6.830 | — | -8.660 | 6.124 | -1.830 | -10.000 |
| 6 | 3.464 | — | -6.928 | 4.899 | -3.464 | -4.899 | 6.928 |
| 7 | 6.062 | — | -3.500 | 3.031 | -5.250 | -2.625 | 1.516 |
| 8 | -5.657 | -5.657 | — | 10.928 | -8.000 | -9.238 | 4.619 |
| 9 | 6.364 | — | -6.364 | 4.500 | -4.500 | -3.294 | 2.329 |
| 10 | 10.000 | — | -14.142 | 10.000 | 0.000 | -8.966 | 7.321 |
| 11 | -3.287 | -8.981 | — | 1.644 | -2.847 | -3.487 | -7.513 |
| 12 | 10.392 | — | -6.000 | 5.196 | -9.000 | -3.674 | 3.674 |
| 13 | 6.729 | — | -13.000 | 4.758 | -4.758 | -9.517 | 8.242 |
| 14 | -9.899 | -9.899 | — | 5.124 | -7.247 | -5.917 | -8.083 |
| 15 | -3.882 | -14.489 | — | 2.745 | -2.745 | -11.830 | -13.415 |
| 16 | -2.821 | — | -16.247 | -2.443 | 1.411 | 4.887 | -4.232 |
| 17 | 0.000 | -17.000 | — | -0.000 | 0.000 | -12.021 | -12.021 |
| 18 | -4.823 | -18.635 | — | 5.569 | -2.785 | -13.642 | -11.138 |
| 19 | 21.192 | — | -15.513 | 18.353 | -10.596 | -12.977 | 12.977 |
| 20 | 11.547 | — | -23.094 | 11.547 | 0.000 | -10.000 | 5.774 |
| 21 | 21.000 | — | -29.698 | 21.000 | 0.000 | -10.870 | 15.373 |
| 22 | 0.000 | -22.000 | — | -0.000 | 0.000 | -11.000 | -19.053 |
| 23 | 16.837 | — | -20.621 | 29.163 | -33.674 | 14.581 | 25.256 |
| 24 | 41.569 | — | -48.000 | 72.000 | -83.138 | 36.000 | 62.354 |
| 25 | 6.699 | -25.882 | — | -6.699 | 6.699 | 28.868 | -32.735 |
| 26 | 13.000 | -22.517 | — | -6.500 | 11.258 | 56.292 | -45.500 |
| 27 | -24.208 | -19.765 | — | 34.235 | -24.208 | -24.208 | 7.235 |
| 28 | 19.799 | — | -19.799 | 14.000 | -14.000 | -7.000 | 12.124 |
| 29 | 16.743 | -16.743 | — | -29.000 | 16.743 | 38.667 | -48.333 |
| 30 | 36.742 | -40.981 | — | -70.981 | 51.962 | 0.000 | -81.962 |