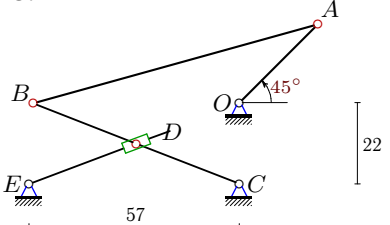
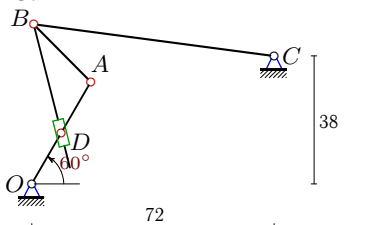
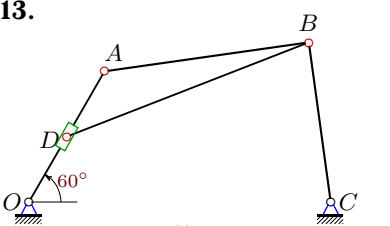
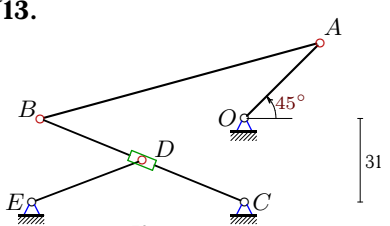
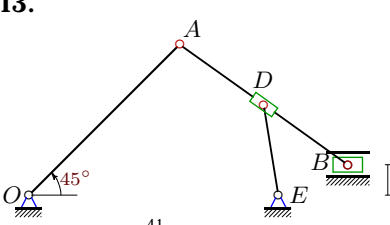
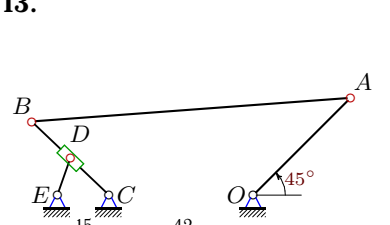
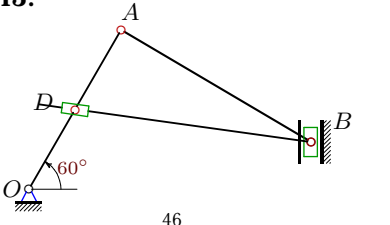
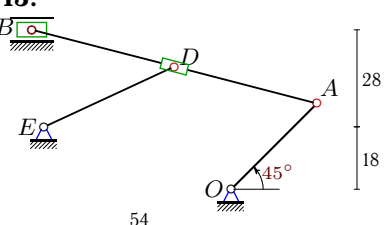


Механизм с муфтой

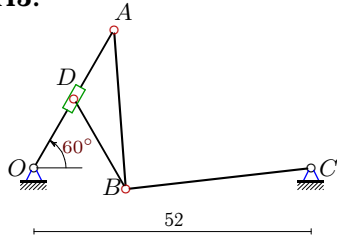
Плоский механизм с одной степенью свободы состоит из шарнирно соединенных стержней и муфты, скользящей по направляющему стержню и шарнирно закрепленной на другом стержне или вращающейся на неподвижном шарнире. Кривошип OA вращается против часовой стрелки с постоянной угловой скоростью ω_{OA} . Горизонтальные и вертикальные размеры на рисунках даны для неподвижных шарниров и для линий движения ползунков (в см). Найти скорость муфты D (или E) относительно направляющего стержня (в см/с).

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| | |
|--|--|
| <p>Вариант 1 K13.</p>  <p>$\omega_{OA} = 1\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$, $AB = 80$, $BC = 60$, $BD = BC/2$.</p> | <p>Вариант 2 K13.</p>  <p>$\omega_{OA} = 2\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 35$, $AB = 24$, $BC = 72$, $OD = OA/2$.</p> |
| <p>Вариант 3 K13.</p>  <p>$\omega_{OA} = 3\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$, $AB = 41$, $BC = 32$, $OD = OA/2$.</p> | <p>Вариант 4 K13.</p>  <p>$\omega_{OA} = 4\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 108$, $BC = 82$, $BD = BC/2$.</p> |
| <p>Вариант 5 K13.</p>  <p>$\omega_{OA} = 5\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 35$, $AB = 34$, $AD = AB/2$.</p> | <p>Вариант 6 K13.</p>  <p>$\omega_{OA} = 6\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 93$, $BC = 31$, $BD = BC/2$.</p> |
| <p>Вариант 7 K13.</p>  <p>$\omega_{OA} = 7\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$, $AB = 36$, $OD = OA/2$.</p> | <p>Вариант 8 K13.</p>  <p>$\omega_{OA} = 8\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 35$, $AB = 85$, $AD = AB/2$.</p> |

Вариант 9

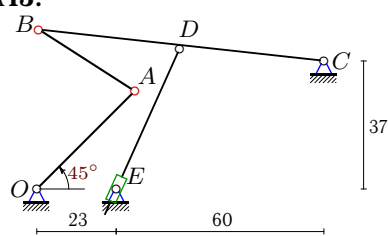
K13.



$$\omega_{OA} = 9\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 30, BC = 35, OD = OA/2.$$

Вариант 10

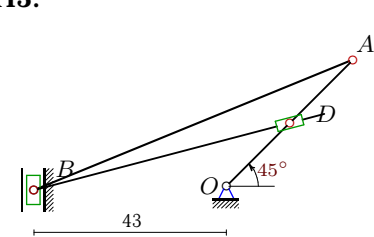
K13.



$$\omega_{OA} = 10\frac{1}{c}, \alpha = 45^\circ, OA = 40, AB = 33, BC = 83, BD = BC/2.$$

Вариант 11

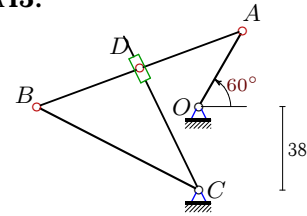
K13.



$$\omega_{OA} = 11\frac{1}{c}, \alpha = 45^\circ, OA = 40, AB = 77, OD = OA/2.$$

Вариант 12

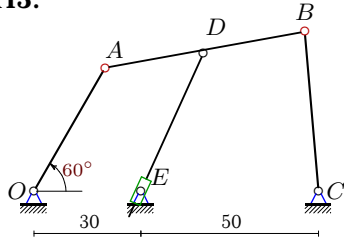
K13.



$$\omega_{OA} = 12\frac{1}{c}, \alpha = 60^\circ, OA = 40, AB = 100, BC = 83, AD = AB/2.$$

Вариант 13

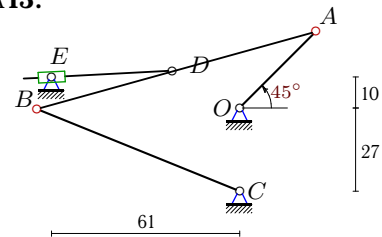
K13.



$$\omega_{OA} = 13\frac{1}{c}, \alpha = 60^\circ, OA = 40, AB = 57, BC = 45, AD = AB/2.$$

Вариант 14

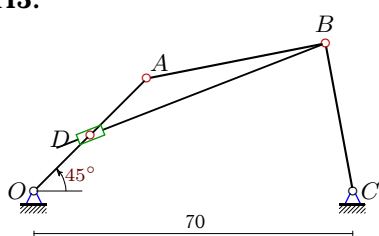
K13.



$$\omega_{OA} = 14\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 94, BC = 71, AD = AB/2.$$

Вариант 15

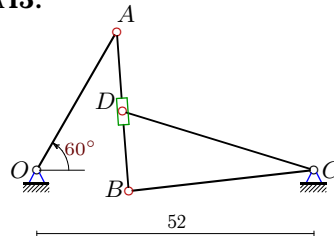
K13.



$$\omega_{OA} = 15\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 40, BC = 33, OD = OA/2.$$

Вариант 16

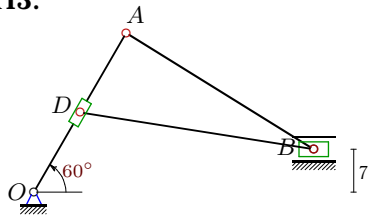
K13.



$$\omega_{OA} = 16\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 30, BC = 35, AD = AB/2.$$

Вариант 17

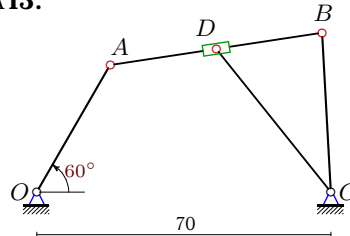
K13.



$$\omega_{OA} = 17\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 36, OD = OA/2.$$

Вариант 18

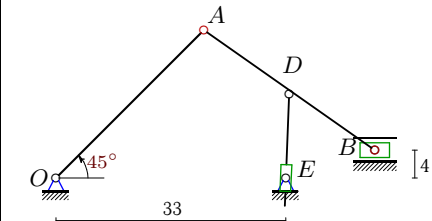
K13.



$$\omega_{OA} = 18\frac{1}{c}, \alpha = 60^\circ, OA = 35, AB = 51, BC = 38, AD = AB/2.$$

Вариант 19

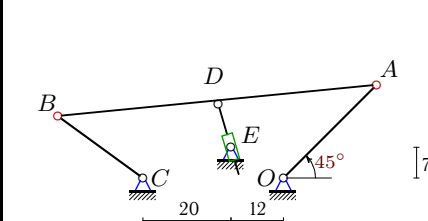
K13.



$\omega_{OA} = 19\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$,
 $AB = 30$, $AD = AB/2$.

Вариант 20

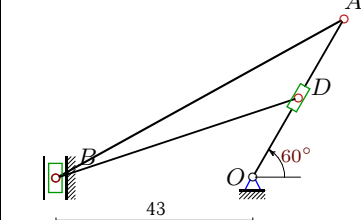
K13.



$\omega_{OA} = 20\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$,
 $AB = 73$, $BC = 24$, $AD = AB/2$.

Вариант 21

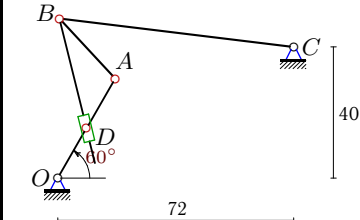
K13.



$\omega_{OA} = 21\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 40$,
 $AB = 72$, $OD = OA/2$.

Вариант 22

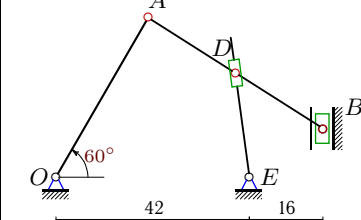
K13.



$\omega_{OA} = 22\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 35$,
 $AB = 25$, $BC = 72$, $OD = OA/2$.

Вариант 23

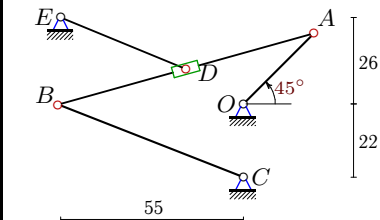
K13.



$\omega_{OA} = 23\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 40$,
 $AB = 45$, $AD = AB/2$.

Вариант 24

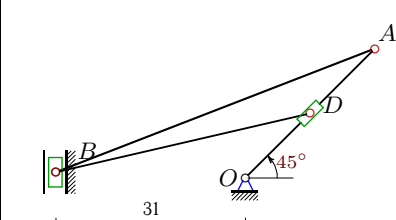
K13.



$\omega_{OA} = 24\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$,
 $AB = 80$, $BC = 60$, $AD = AB/2$.

Вариант 25

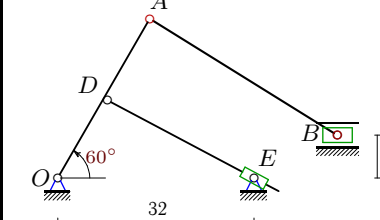
K13.



$\omega_{OA} = 25\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$,
 $AB = 56$, $OD = OA/2$.

Вариант 26

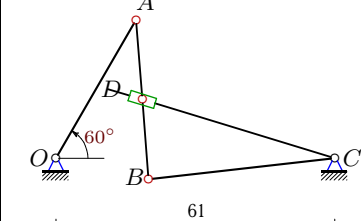
K13.



$\omega_{OA} = 26\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$,
 $AB = 36$, $OD = OA/2$.

Вариант 27

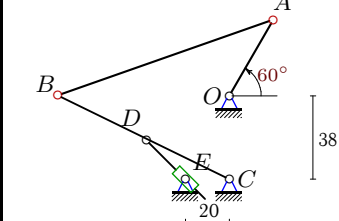
K13.



$\omega_{OA} = 27\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 35$,
 $AB = 35$, $BC = 41$, $AD = AB/2$.

Вариант 28

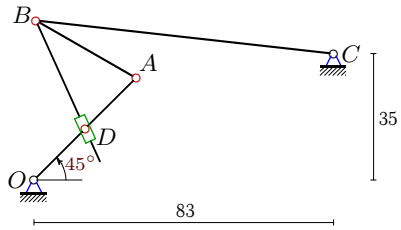
K13.



$\omega_{OA} = 28\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 40$,
 $AB = 104$, $BC = 87$, $BD = BC/2$.

Вариант 29

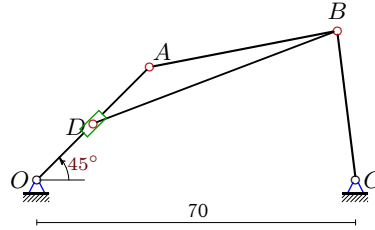
K13.



$\omega_{OA} = 29\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$,
 $AB = 32$, $BC = 83$, $OD = OA/2$.

Вариант 30

K13.



$\omega_{OA} = 30\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 35$,
 $AB = 42$, $BC = 33$, $OD = OA/2$.

Ответы

| | v_A | v_B | v_D | v_r | x_B | y_B |
|----|-------|-----------|-----------|------------|---------|--------|
| 1 | 30 | 24.6437 | 12.3219 | 8.2378 | -55.881 | -0.152 |
| 2 | 70 | 110.1646 | 35.0000 | -77.9980 | 0.611 | 47.363 |
| 3 | 90 | 70.9086 | 45.0000 | 52.3498 | 55.600 | 31.696 |
| 4 | 160 | 130.9279 | 65.4640 | -60.7108 | -75.934 | -0.047 |
| 5 | 175 | 212.0418 | 178.9304 | -124.9945 | 52.425 | 5.000 |
| 6 | 240 | 211.2788 | 105.6394 | 235.7568 | -64.458 | 21.369 |
| 7 | 210 | 413.0273 | 105.0000 | -40.7968 | 46.000 | 7.678 |
| 8 | 280 | 249.1139 | 244.4902 | 208.5189 | -57.552 | 46.000 |
| 9 | 270 | 152.0620 | 135.0000 | -45.3858 | 17.222 | -3.937 |
| 10 | 400 | 879.9026 | 439.9513 | -418.4089 | 0.499 | 46.088 |
| 11 | 440 | 450.6854 | 220.0000 | -3.1605 | -43.000 | -0.828 |
| 12 | 480 | 415.9591 | 309.8926 | -74.1404 | -73.801 | -0.020 |
| 13 | 520 | 398.3132 | 438.2937 | 72.5274 | 76.082 | 44.829 |
| 14 | 490 | 395.9891 | 247.6520 | 247.6340 | -65.826 | -0.394 |
| 15 | 525 | 292.8291 | 262.5000 | 181.9433 | 64.000 | 32.450 |
| 16 | 480 | 270.3324 | 338.2661 | -791.7947 | 17.222 | -3.937 |
| 17 | 510 | 599.8992 | 255.0000 | 986.8356 | 45.590 | 7.000 |
| 18 | 630 | 494.5685 | 539.2944 | -873.0514 | 67.926 | 37.943 |
| 19 | 570 | 685.4146 | 580.3463 | -179.8681 | 45.784 | 4.000 |
| 20 | 600 | 574.3593 | 381.1370 | -87.1583 | -51.437 | 14.078 |
| 21 | 840 | 894.8080 | 420.0000 | 2.3164 | -43.000 | -0.216 |
| 22 | 770 | 1136.6577 | 385.0000 | -796.7933 | 0.523 | 48.662 |
| 23 | 920 | 1716.0704 | 1158.6719 | -1131.0113 | 58.000 | 10.537 |
| 24 | 720 | 591.4494 | 362.8401 | 414.1387 | -55.881 | -0.152 |
| 25 | 750 | 837.5578 | 375.0000 | -11.2125 | -31.000 | 0.970 |
| 26 | 780 | 917.4928 | 390.0000 | -389.7463 | 45.590 | 7.000 |
| 27 | 945 | 535.7838 | 667.3093 | -566.7472 | 20.257 | -4.580 |
| 28 | 1120 | 1025.5635 | 512.7818 | 166.9140 | -78.146 | 0.240 |
| 29 | 1160 | 2815.1458 | 580.0000 | -1876.0746 | 0.509 | 44.175 |
| 30 | 1050 | 588.7611 | 525.0000 | 390.9626 | 65.979 | 32.754 |