

Механизм с муфтой

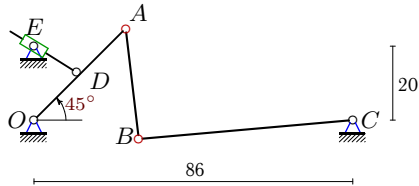
Плоский механизм с одной степенью свободы состоит из шарнирно соединенных стержней и муфты, скользящей по направляющему стержню и шарнирно закрепленной на другом стержне или вращающейся на неподвижном шарнире. Кривошип OA вращается против часовой стрелки с постоянной угловой скоростью ω_{OA} . Горизонтальные 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).

Кирсанов М.Н. Решебник. Теоретическая механика с. 216.

<p>Вариант 1 К13.</p> <p>$\omega_{OA} = 1\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 33$, $BC = 83$, $OD = OA/2$.</p>	<p>Вариант 2 К13.</p> <p>$\omega_{OA} = 2\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 35$, $AB = 92$, $BC = 69$, $OD = OA/2$.</p>
<p>Вариант 3 К13.</p> <p>$\omega_{OA} = 3\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 98$, $AD = AB/2$.</p>	<p>Вариант 4 К13.</p> <p>$\omega_{OA} = 4\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$, $AB = 65$, $OD = OA/2$.</p>
<p>Вариант 5 К13.</p> <p>$\omega_{OA} = 5\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 51$, $BC = 38$, $OD = OA/2$.</p>	<p>Вариант 6 К13.</p> <p>$\omega_{OA} = 6\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 40$, $AB = 47$, $BC = 39$, $AD = AB/2$.</p>
<p>Вариант 7 К13.</p> <p>$\omega_{OA} = 7\frac{1}{c}$, $\alpha = 45^\circ$, $OA = 30$, $AB = 25$, $BC = 50$, $AD = AB/2$.</p>	<p>Вариант 8 К13.</p> <p>$\omega_{OA} = 8\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$, $AB = 22$, $BC = 62$, $AD = AB/2$.</p>

Вариант 9

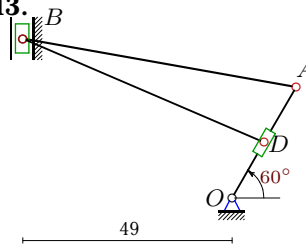
K13.



$$\omega_{OA} = 9\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 30, BC = 58, OD = OA/2.$$

Вариант 10

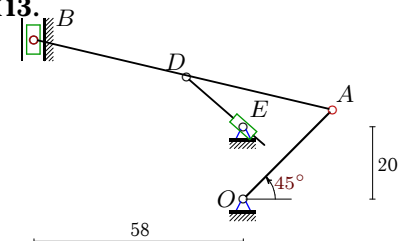
K13.



$$\omega_{OA} = 10\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 65, OD = OA/2.$$

Вариант 11

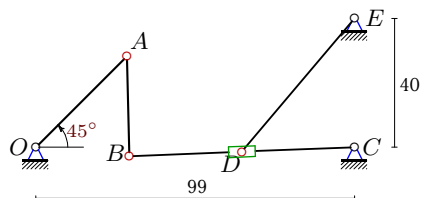
K13.



$$\omega_{OA} = 11\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 85, AD = AB/2.$$

Вариант 12

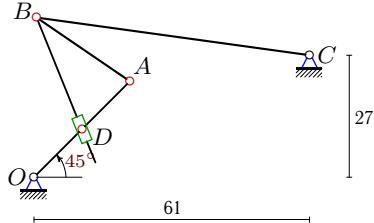
K13.



$$\omega_{OA} = 12\frac{1}{c}, \alpha = 45^\circ, OA = 40, AB = 31, BC = 70, BD = BC/2.$$

Вариант 13

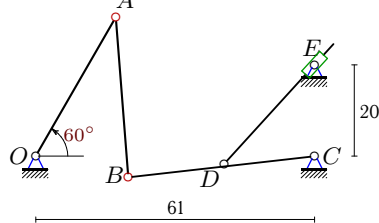
K13.



$$\omega_{OA} = 13\frac{1}{c}, \alpha = 45^\circ, OA = 30, AB = 25, BC = 61, OD = OA/2.$$

Вариант 14

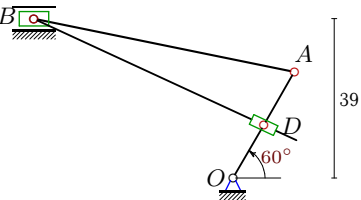
K13.



$$\omega_{OA} = 14\frac{1}{c}, \alpha = 60^\circ, OA = 35, AB = 35, BC = 41, BD = BC/2.$$

Вариант 15

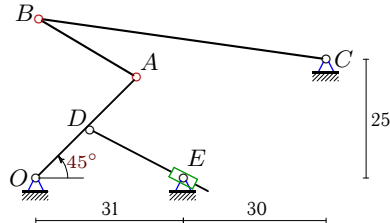
K13.



$$\omega_{OA} = 15\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 65, OD = OA/2.$$

Вариант 16

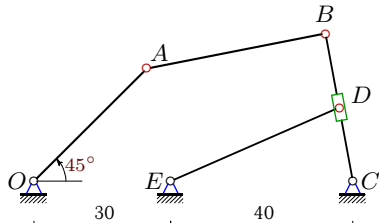
K13.



$$\omega_{OA} = 16\frac{1}{c}, \alpha = 45^\circ, OA = 30, AB = 24, BC = 61, OD = OA/2.$$

Вариант 17

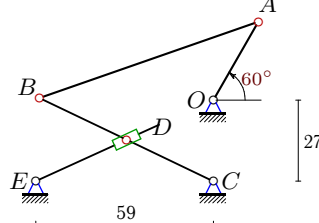
K13.



$$\omega_{OA} = 17\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 40, BC = 33, BD = BC/2.$$

Вариант 18

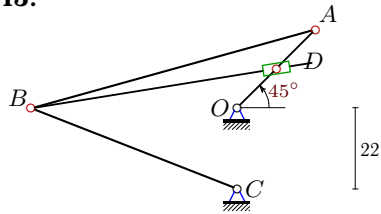
K13.



$$\omega_{OA} = 18\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 77, BC = 64, BD = BC/2.$$

Вариант 19

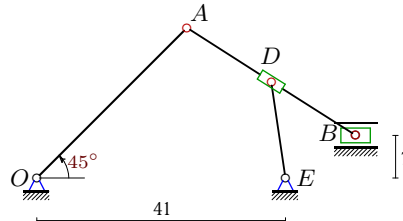
K13.



$$\omega_{OA} = 19\frac{1}{c}, \alpha = 45^\circ, OA = 30, AB = 80, BC = 60, OD = OA/2.$$

Вариант 20

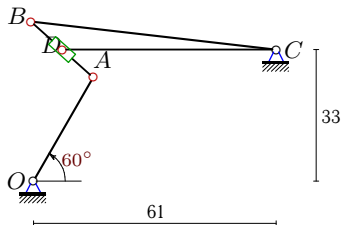
K13.



$$\omega_{OA} = 20\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 33, AD = AB/2.$$

Вариант 21

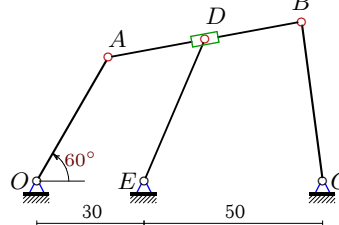
K13.



$$\omega_{OA} = 21\frac{1}{c}, \alpha = 60^\circ, OA = 30, AB = 21, BC = 62, AD = AB/2.$$

Вариант 22

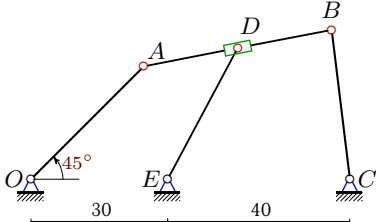
K13.



$$\omega_{OA} = 22\frac{1}{c}, \alpha = 60^\circ, OA = 40, AB = 55, BC = 45, AD = AB/2.$$

Вариант 23

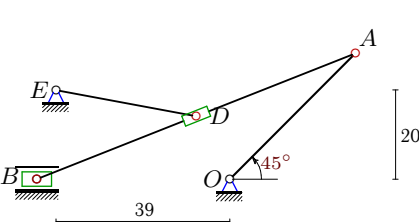
K13.



$$\omega_{OA} = 23\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 42, BC = 33, AD = AB/2.$$

Вариант 24

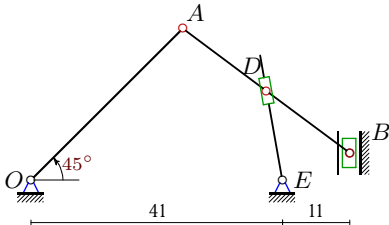
K13.



$$\omega_{OA} = 24\frac{1}{c}, \alpha = 45^\circ, OA = 40, AB = 77, AD = AB/2.$$

Вариант 25

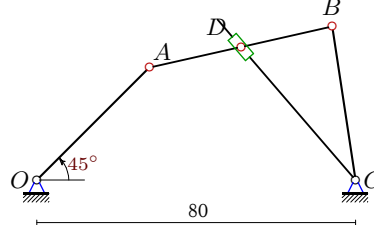
K13.



$$\omega_{OA} = 25\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 34, AD = AB/2.$$

Вариант 26

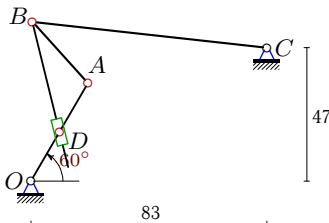
K13.



$$\omega_{OA} = 26\frac{1}{c}, \alpha = 45^\circ, OA = 40, AB = 47, BC = 39, AD = AB/2.$$

Вариант 27

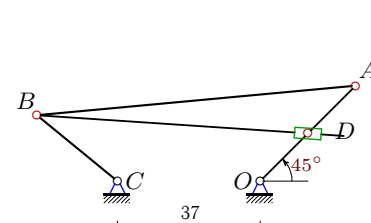
K13.



$$\omega_{OA} = 27\frac{1}{c}, \alpha = 60^\circ, OA = 40, AB = 29, BC = 83, OD = OA/2.$$

Вариант 28

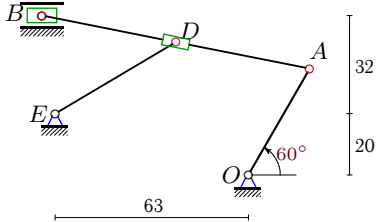
K13.



$$\omega_{OA} = 28\frac{1}{c}, \alpha = 45^\circ, OA = 35, AB = 83, BC = 27, OD = OA/2.$$

Вариант 29

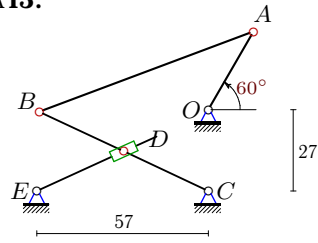
K13.



$\omega_{OA} = 29\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 40$,
 $AB = 89$, $AD = AB/2$.

Вариант 30

K13.



$\omega_{OA} = 30\frac{1}{c}$, $\alpha = 60^\circ$, $OA = 30$,
 $AB = 76$, $BC = 62$, $BD = BC/2$.

Ответы

	v_A	v_B	v_D	v_r	x_B	y_B
1	40	87.9903	20.0000	-19.7989	0.499	46.088
2	70	54.6087	35.0000	-8.8210	-63.715	-0.515
3	120	106.0160	104.4401	-96.6182	-66.803	52.000
4	120	645.5945	60.0000	-59.1064	-49.000	37.339
5	200	113.2409	100.0000	66.0725	78.357	37.964
6	240	128.8171	166.4780	-326.6382	74.148	38.558
7	210	159.4851	173.4116	-14.6478	23.138	-3.713
8	240	375.8493	259.4969	113.7046	-0.538	41.556
9	315	247.1194	157.5000	153.2397	28.220	-5.050
10	300	1613.9863	150.0000	4206.1196	-49.000	37.339
11	385	1431.4522	862.6509	-661.8334	-58.000	44.182
12	480	347.7499	173.8750	190.1637	29.052	-2.706
13	390	858.9187	195.0000	-564.6285	0.569	35.314
14	490	277.8138	138.9069	91.4246	20.257	-4.580
15	450	435.7102	225.0000	-171.3063	-48.683	39.000
16	480	1201.8733	240.0000	-228.8655	0.595	33.496
17	595	331.8729	165.9365	707.3085	64.000	32.450
18	540	500.6985	250.3493	192.4678	-57.716	0.656
19	570	468.2308	285.0000	-71.2216	-55.881	-0.152
20	700	810.7550	698.1995	-519.1539	52.569	7.000
21	630	1060.8482	716.7394	286.2958	-0.599	40.040
22	880	670.5821	734.8152	-216.6573	74.089	44.610
23	805	451.3835	569.9118	-20.5270	65.979	32.754
24	960	410.7299	641.8575	705.4922	-43.333	0.000
25	875	1448.0170	1078.6806	-1071.8327	52.000	4.417
26	1040	558.2076	721.4048	-666.9016	74.148	38.558
27	1080	1553.8419	540.0000	-1086.0821	0.501	56.107
28	980	892.0909	490.0000	-148.3743	-57.898	17.096
29	1160	1119.9306	1101.1341	1029.1231	-67.291	52.000
30	900	799.4309	399.7155	303.9976	-56.155	-0.721