

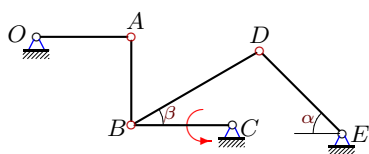
Уравнение трех угловых ускорений

Многозвенный механизм приводится в движение кривошипом OA или BC , вращающимся с известной угловой скоростью и известным угловым ускорением. Найти угловые скорости и угловые ускорения звеньев механизма. Длины звеньев даны в см, угловые скорости — в рад/с, угловые ускорения — в рад/с². Стержни, положение которых не определено углом, вертикальны или горизонтальны.

Кирсанов М.Н. Решебник. Теоретическая механика с. 183.

Вариант 1

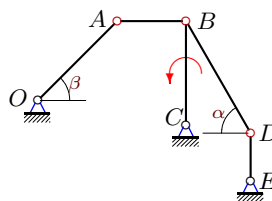
K19.



$\omega_{BC}=2, \epsilon_{BC}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=30, AB=28, BC=32, BD=47,$
 $DE=37.$

Вариант 2

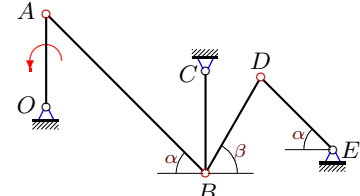
K19.



$\omega_{BC}=2, \epsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=16, BC=24, BD=30,$
 $DE=11.$

Вариант 3

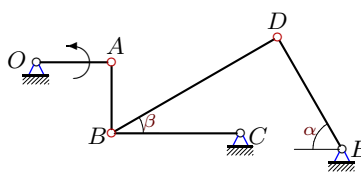
K19.



$\omega_{OA}=2, \epsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=53, BC=24, BD=26,$
 $DE=24.$

Вариант 4

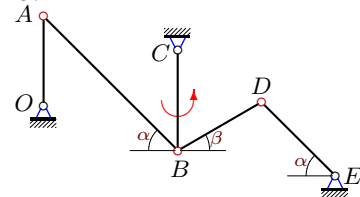
K19.



$\omega_{OA}=1, \epsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=18, AB=17, BC=31, BD=46,$
 $DE=31.$

Вариант 5

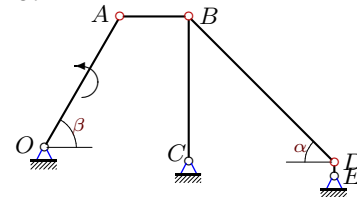
K19.



$\omega_{BC}=3, \epsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=51, BC=27, BD=26,$
 $DE=28.$

Вариант 6

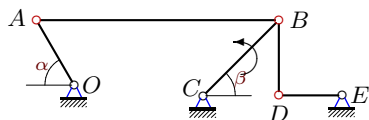
K19.



$\omega_{OA}=1, \epsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=10, BC=21, BD=30,$
 $DE=2.$

Вариант 7

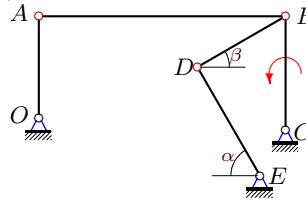
K19.



$\omega_{BC}=3, \epsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=84, BC=37, BD=26,$
 $DE=22.$

Вариант 8

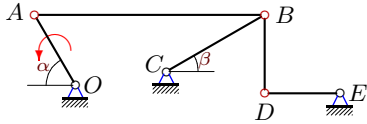
K19.



$\omega_{BC}=3, \epsilon_{BC}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=63, BC=29, BD=26,$
 $DE=32.$

Вариант 9

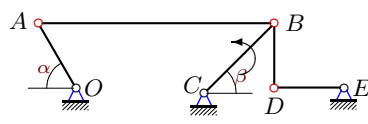
K19.



$\omega_{OA}=3, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=79, BC=39, BD=27,$
 $DE=26.$

Вариант 10

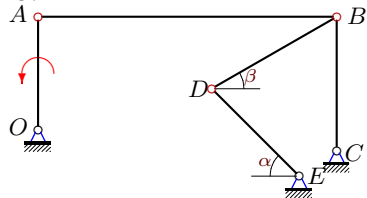
K19.



$\omega_{BC}=1, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=88, BC=37, BD=24,$
 $DE=26.$

Вариант 11

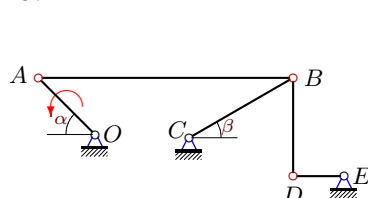
K19.



$\omega_{OA}=4, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=58, BC=26, BD=28,$
 $DE=24.$

Вариант 12

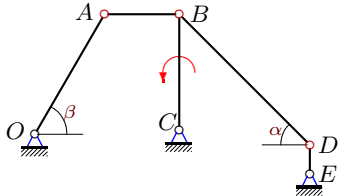
K19.



$\omega_{OA}=3, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=70, BC=33, BD=27,$
 $DE=14.$

Вариант 13

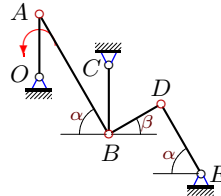
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=13, BC=20, BD=32,$
 $DE=5.$

Вариант 14

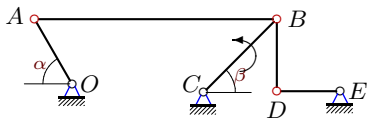
K19.



$\omega_{OA}=3, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=62, BC=31, BD=27,$
 $DE=36.$

Вариант 15

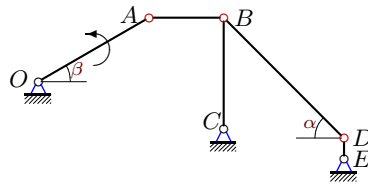
K19.



$\omega_{BC}=2, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=84, BC=36, BD=25,$
 $DE=22.$

Вариант 16

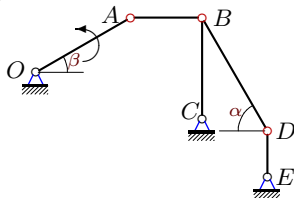
K19.



$\omega_{OA}=3, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=14, BC=21, BD=32,$
 $DE=4.$

Вариант 17

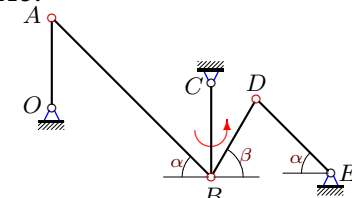
K19.



$\omega_{OA}=2, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=17, BC=24, BD=31,$
 $DE=11.$

Вариант 18

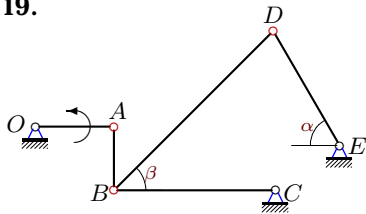
K19.



$\omega_{BC}=1, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=60, BC=25, BD=24,$
 $DE=28.$

Вариант 19

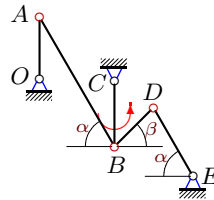
K19.



$\omega_{OA}=1, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=16, AB=13, BC=33, BD=46,$
 $DE=27.$

Вариант 20

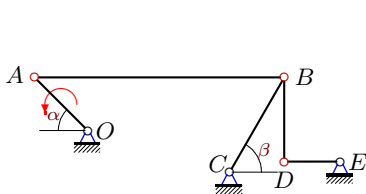
K19.



$\omega_{BC}=2, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=68, BC=30, BD=25,$
 $DE=36.$

Вариант 21

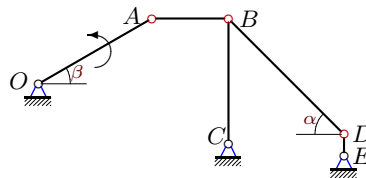
K19.



$\omega_{OA}=3, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=80, BC=35, BD=27,$
 $DE=18.$

Вариант 22

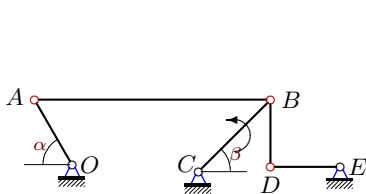
K19.



$\omega_{OA}=1, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=14, BC=23, BD=30,$
 $DE=4.$

Вариант 23

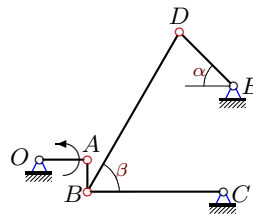
K19.



$\omega_{BC}=2, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=88, BC=38, BD=25,$
 $DE=26.$

Вариант 24

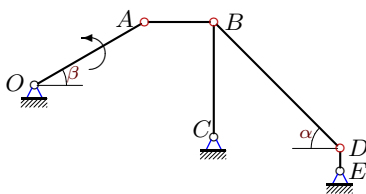
K19.



$\omega_{OA}=1, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=12, AB=8, BC=34, BD=46,$
 $DE=19.$

Вариант 25

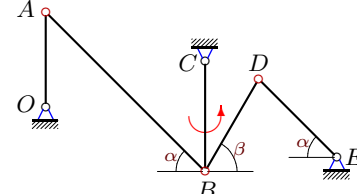
K19.



$\omega_{OA}=2, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=12, BC=20, BD=31,$
 $DE=4.$

Вариант 26

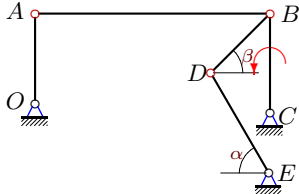
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=57, BC=28, BD=27,$
 $DE=28.$

Вариант 27

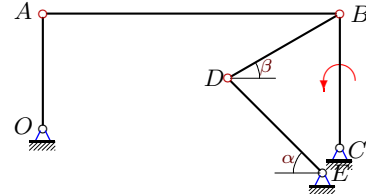
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=73, BC=31, BD=26,$
 $DE=36.$

Вариант 28

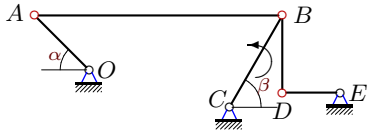
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=62, BC=28, BD=27,$
 $DE=28.$

Вариант 29

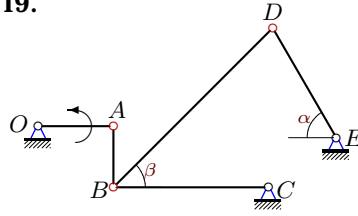
K19.



$\omega_{BC}=1, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=77, BC=33, BD=24,$
 $DE=18.$

Вариант 30

K19.



$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=16, AB=13, BC=33, BD=48,$
 $DE=27.$

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	-2.133	0.000	2.000	0.997	0.895	-1.067	9.448	1.000	1.572	-1.132
2	2.611	-3.000	2.000	0.000	4.364	-10.733	14.165	3.000	-7.564	24.410
3	2.000	0.000	-1.833	-1.239	0.949	1.000	4.501	6.111	1.409	-4.697
4	1.000	0.000	-0.581	-0.339	-0.290	4.000	1.674	-2.323	-1.299	-1.283
5	-3.375	0.000	3.000	2.281	-2.594	19.266	14.319	2.000	-14.215	0.581
6	1.000	-1.100	0.907	-0.000	9.526	1.000	-0.923	2.007	-7.741	103.183
7	3.486	1.474	3.000	3.019	-3.568	12.855	3.378	3.000	22.845	-3.635
8	3.346	0.000	3.000	1.673	2.355	3.346	0.478	3.000	-0.197	4.158
9	3.000	2.127	3.731	2.694	-4.846	4.000	-3.073	-7.271	34.773	12.345
10	1.079	0.469	1.000	1.090	-1.006	5.269	2.051	4.000	6.548	-4.116
11	4.000	0.000	3.385	2.301	3.287	1.000	0.934	0.846	0.960	3.748
12	3.000	1.821	2.828	1.728	-5.774	1.000	-2.653	-7.324	21.278	18.617
13	3.849	-3.553	4.000	0.000	16.000	-14.524	12.478	2.000	-42.426	200.000
14	3.000	0.000	-2.710	-1.556	2.021	4.000	15.471	23.184	0.564	-18.636
15	2.261	0.956	2.000	2.036	-2.314	7.456	2.221	3.000	11.840	-3.556
16	3.000	-4.454	1.714	-0.000	9.000	2.000	0.337	23.275	-11.592	187.765
17	2.000	-2.649	1.083	-0.000	2.364	3.000	-2.572	10.348	-2.148	27.820
18	-1.042	0.000	1.000	0.763	-0.462	0.043	1.203	2.000	0.660	-1.266
19	1.000	0.000	-0.485	-0.312	-0.434	3.000	1.828	-1.455	-0.937	-1.391
20	-2.143	0.000	2.000	1.242	-1.220	11.091	7.311	4.000	-3.625	-4.170
21	3.000	1.004	1.680	1.886	-1.633	2.000	0.633	-2.889	0.364	2.226
22	1.000	-1.485	0.522	0.000	3.000	2.000	-2.559	3.289	-1.402	26.345
23	2.216	0.963	2.000	2.150	-2.067	8.333	2.679	4.000	13.041	-4.443
24	1.000	0.000	-0.353	-0.191	-0.566	1.000	2.029	-0.353	-0.251	-0.676
25	2.000	-3.175	1.100	-0.000	5.500	1.000	0.062	10.411	-4.416	76.253
26	-4.667	0.000	4.000	3.037	-2.071	38.111	24.083	2.000	-12.760	-7.324
27	3.321	0.000	3.000	1.852	1.891	4.429	0.409	4.000	-1.107	4.673
28	4.667	0.000	4.000	3.037	3.586	2.333	1.204	2.000	0.709	4.316
29	1.684	0.585	1.000	1.191	-0.917	5.621	1.921	2.000	3.699	-2.136
30	3.000	0.000	-1.455	-0.897	-1.301	3.000	16.448	-1.455	-0.915	-2.169