

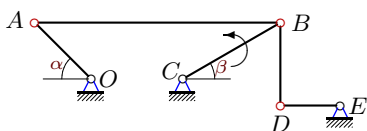
Уравнение трех угловых ускорений

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

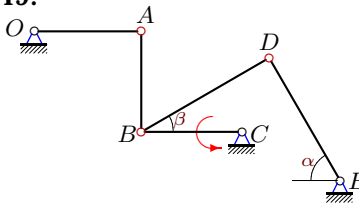
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=74, BC=34, BD=25,$
 $DE=18.$

Вариант 2

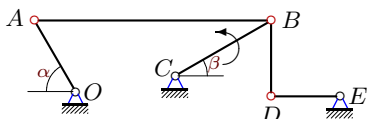
K19.



$\omega_{BC}=2, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=34, AB=32, BC=32, BD=47,$
 $DE=45.$

Вариант 3

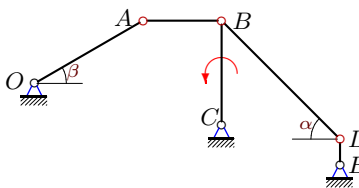
K19.



$\omega_{BC}=1, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=75, BC=35, BD=24,$
 $DE=22.$

Вариант 4

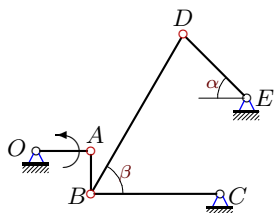
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=15, BC=20, BD=32,$
 $DE=5.$

Вариант 5

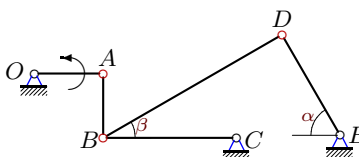
K19.



$\omega_{OA}=2, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=14, AB=11, BC=33, BD=47,$
 $DE=23.$

Вариант 6

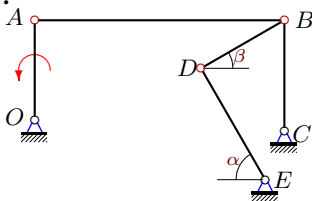
K19.



$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=16, AB=15, BC=31, BD=48,$
 $DE=27.$

Вариант 7

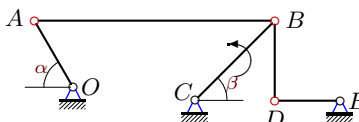
K19.



$\omega_{OA}=3, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=70, BC=31, BD=27,$
 $DE=36.$

Вариант 8

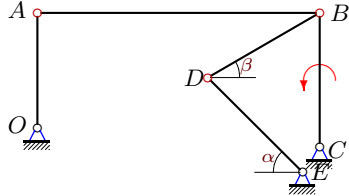
K19.



$\omega_{BC}=4, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=81, BC=38, BD=27,$
 $DE=22.$

Вариант 9

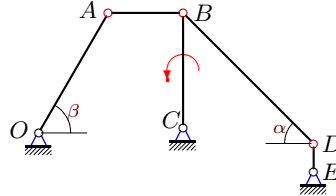
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=59, BC=28, BD=27,$
 $DE=28.$

Вариант 10

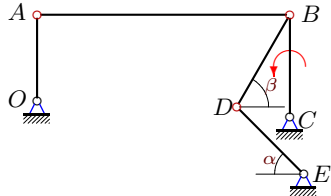
K19.



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

Вариант 11

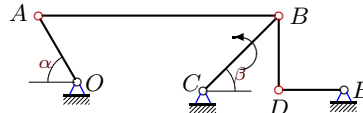
K19.



$\omega_{BC}=4, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=64, BC=26, BD=27,$
 $DE=24.$

Вариант 12

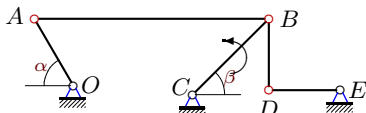
K19.



$\omega_{BC}=2, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=81, BC=36, BD=25,$
 $DE=22.$

Вариант 13

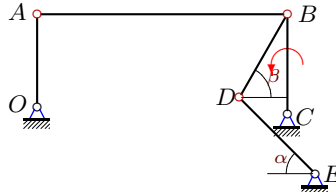
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=85, BC=39, BD=26,$
 $DE=26.$

Вариант 14

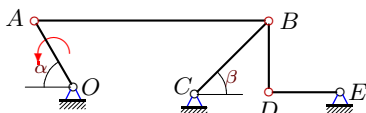
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=65, BC=26, BD=25,$
 $DE=28.$

Вариант 15

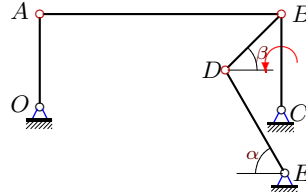
K19.



$\omega_{OA}=2, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=85, BC=38, BD=26,$
 $DE=26.$

Вариант 16

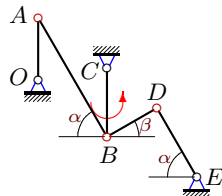
K19.



$\omega_{BC}=1, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=73, BC=29, BD=24,$
 $DE=36.$

Вариант 17

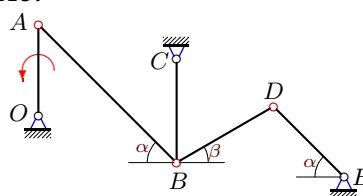
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=62, BC=31, BD=26,$
 $DE=36.$

Вариант 18

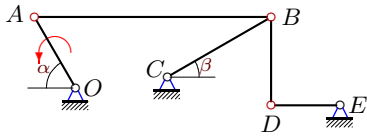
K19.



$\omega_{OA}=3, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=47, BC=25, BD=27,$
 $DE=24.$

Вариант 19

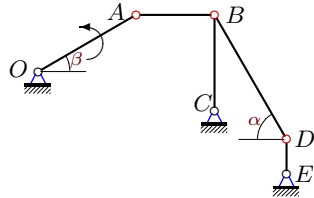
K19.



$\omega_{OA}=4, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=75, BC=38, BD=28,$
 $DE=22.$

Вариант 20

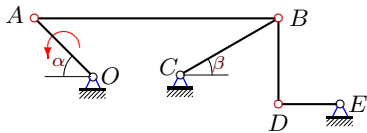
K19.



$\omega_{OA}=4, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=18, BC=22, BD=33,$
 $DE=8.$

Вариант 21

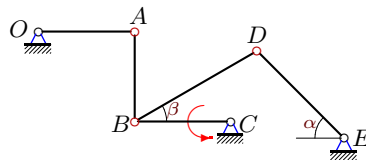
K19.



$\omega_{OA}=1, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=71, BC=33, BD=25,$
 $DE=18.$

Вариант 22

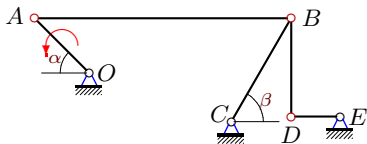
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=32, AB=30, BC=32, BD=47,$
 $DE=41.$

Вариант 23

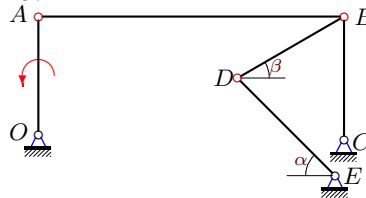
K19.



$\omega_{OA}=4, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=73, BC=34, BD=28,$
 $DE=14.$

Вариант 24

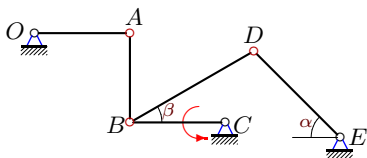
K19.



$\omega_{OA}=1, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=62, BC=25, BD=25,$
 $DE=28.$

Вариант 25

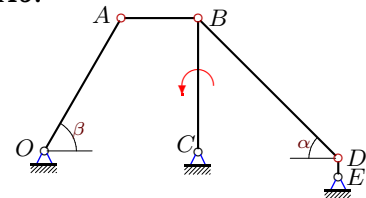
K19.



$\omega_{BC}=3, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=32, AB=30, BC=32, BD=48,$
 $DE=41.$

Вариант 26

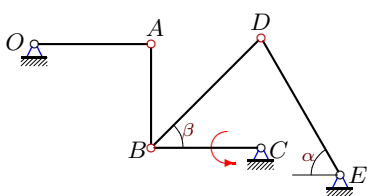
K19.



$\omega_{BC}=3, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=12, BC=21, BD=31,$
 $DE=3.$

Вариант 27

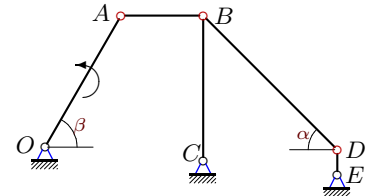
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=36, AB=32, BC=34, BD=48,$
 $DE=49.$

Вариант 28

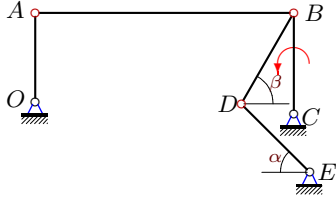
K19.



$\omega_{OA}=1, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=13, BC=23, BD=30,$
 $DE=4.$

Вариант 29

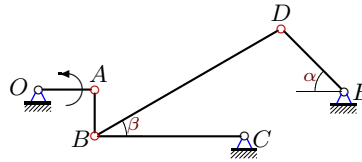
K19.



$\omega_{BC}=3$, $\varepsilon_{BC}=1$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=22$, $AB=64$, $BC=25$, $BD=26$,
 $DE=24$.

Вариант 30

K19.



$\omega_{OA}=1$, $\varepsilon_{OA}=1$, $\alpha=45^\circ$, $\beta=30^\circ$,
 $OA=12$, $AB=10$, $BC=32$, $BD=46$,
 $DE=19$.

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	2.003	1.255	2.000	1.360	-3.272	6.087	2.193	2.000	13.778	-2.063
2	-1.882	0.000	2.000	1.179	0.711	-2.824	7.765	3.000	2.646	0.056
3	0.777	0.539	1.000	0.729	-1.378	3.059	1.691	3.000	5.191	-3.918
4	6.667	-9.238	4.000	0.000	16.000	-180.313	264.072	2.000	-42.426	200.000
5	2.000	0.000	-0.848	-0.436	-1.091	2.000	7.251	-0.848	-0.619	-1.543
6	3.000	0.000	-1.548	-0.866	-0.889	3.000	14.555	-1.548	-0.536	-1.939
7	3.000	0.000	2.710	1.556	2.021	4.000	0.348	3.613	0.218	4.041
8	4.773	2.093	4.000	3.981	-4.885	20.070	5.242	3.000	38.356	-3.570
9	4.667	0.000	4.000	3.037	3.586	2.333	1.266	2.000	0.709	4.316
10	3.849	-3.553	4.000	0.000	16.000	-14.524	12.478	2.000	-42.426	200.000
11	4.727	0.000	4.000	2.820	2.243	1.182	1.182	1.000	-3.813	5.493
12	2.261	0.991	2.000	2.036	-2.314	7.329	2.283	3.000	11.840	-3.556
13	3.412	1.535	3.000	3.182	-3.182	13.243	3.880	4.000	23.914	-4.822
14	2.167	0.000	2.000	1.523	0.961	2.167	0.133	2.000	0.170	1.901
15	2.000	0.900	1.805	1.865	-1.865	4.000	1.033	0.830	7.704	-0.971
16	1.036	0.000	1.000	0.625	0.590	4.143	0.014	4.000	2.063	2.585
17	-3.321	0.000	3.000	1.788	-2.237	31.938	18.964	4.000	-13.839	-4.548
18	3.000	0.000	-2.640	-1.789	2.466	1.000	11.201	14.010	-1.680	-11.484
19	4.000	2.773	4.740	3.217	-7.091	3.000	-7.369	-15.952	55.092	30.100
20	4.000	-5.004	2.364	0.000	6.500	3.000	0.974	38.633	-13.036	152.810
21	1.000	0.653	1.029	0.679	-1.633	2.000	0.886	1.031	3.810	-1.308
22	-2.000	0.000	2.000	0.997	0.808	-2.000	8.533	2.000	2.135	-0.637
23	4.000	1.345	2.113	2.222	-2.566	1.000	0.419	-6.021	-0.328	6.827
24	1.000	0.000	0.960	0.703	0.768	2.000	0.015	1.920	1.283	1.665
25	-3.000	0.000	3.000	1.464	1.212	-2.000	19.200	2.000	3.495	-2.498
26	3.031	-3.031	3.000	0.000	21.000	-8.588	8.751	2.000	-51.733	392.000
27	-2.833	0.000	3.000	1.905	1.524	-3.778	18.594	4.000	4.359	0.519
28	1.000	-0.923	0.904	-0.000	5.196	2.000	-1.692	2.811	-4.206	38.466
29	3.409	0.000	3.000	2.112	1.618	1.136	0.479	1.000	-1.936	3.242
30	1.000	0.000	-0.375	-0.191	-0.327	1.000	1.650	-0.375	-0.175	-0.419