

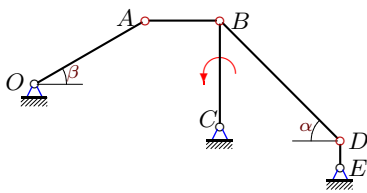
Уравнение трех угловых ускорений

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

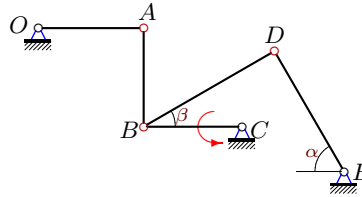
K19.



$\omega_{BC}=4$, $\epsilon_{BC}=2$, $\alpha=45^\circ$, $\beta=30^\circ$,
 $OA=24$, $AB=14$, $BC=20$, $BD=32$,
 $DE=5$.

Вариант 2

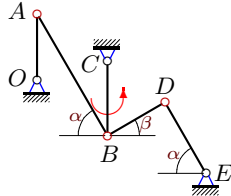
K19.



$\omega_{BC}=4$, $\epsilon_{BC}=3$, $\alpha=60^\circ$, $\beta=30^\circ$,
 $OA=34$, $AB=32$, $BC=32$, $BD=49$,
 $DE=45$.

Вариант 3

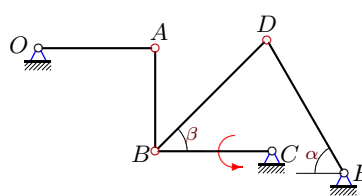
K19.



$\omega_{BC}=3$, $\epsilon_{BC}=3$, $\alpha=60^\circ$, $\beta=30^\circ$,
 $OA=26$, $AB=55$, $BC=29$, $BD=26$,
 $DE=32$.

Вариант 4

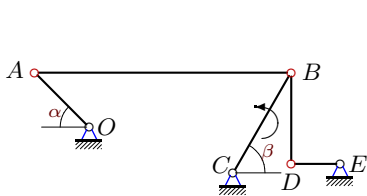
K19.



$\omega_{BC}=1$, $\epsilon_{BC}=3$, $\alpha=60^\circ$, $\beta=45^\circ$,
 $OA=34$, $AB=30$, $BC=34$, $BD=46$,
 $DE=45$.

Вариант 5

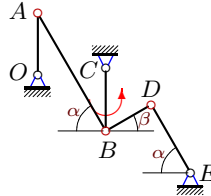
K19.



$\omega_{BC}=3$, $\epsilon_{BC}=1$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=22$, $AB=73$, $BC=33$, $BD=26$,
 $DE=14$.

Вариант 6

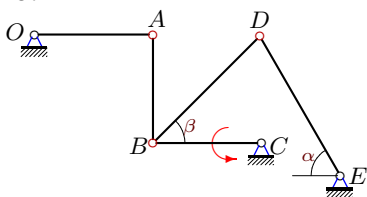
K19.



$\omega_{BC}=1$, $\epsilon_{BC}=4$, $\alpha=60^\circ$, $\beta=30^\circ$,
 $OA=28$, $AB=62$, $BC=29$, $BD=24$,
 $DE=36$.

Вариант 7

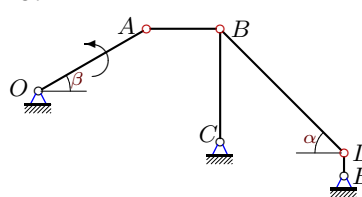
K19.



$\omega_{BC}=1$, $\epsilon_{BC}=4$, $\alpha=60^\circ$, $\beta=45^\circ$,
 $OA=36$, $AB=33$, $BC=33$, $BD=46$,
 $DE=49$.

Вариант 8

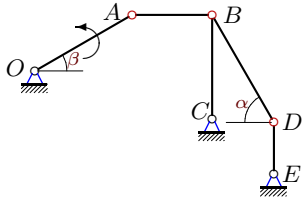
K19.



$\omega_{OA}=2$, $\epsilon_{OA}=1$, $\alpha=45^\circ$, $\beta=30^\circ$,
 $OA=22$, $AB=13$, $BC=20$, $BD=31$,
 $DE=4$.

Вариант 9

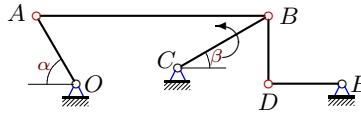
K19.



$\omega_{OA}=2, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=20, BC=26, BD=31,$
 $DE=13.$

Вариант 10

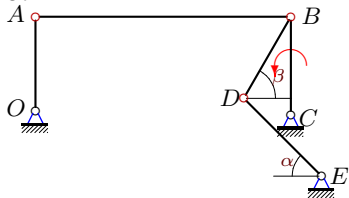
K19.



$\omega_{BC}=1, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=82, BC=37, BD=24,$
 $DE=26.$

Вариант 11

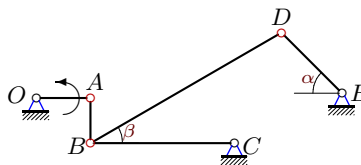
K19.



$\omega_{BC}=1, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=65, BC=25, BD=24,$
 $DE=28.$

Вариант 12

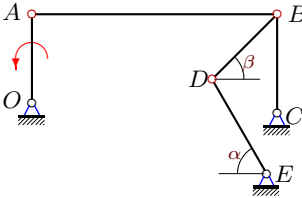
K19.



$\omega_{OA}=4, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=12, AB=10, BC=32, BD=49,$
 $DE=19.$

Вариант 13

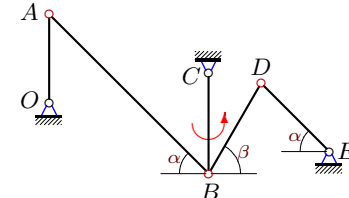
K19.



$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=72, BC=29, BD=27,$
 $DE=32.$

Вариант 14

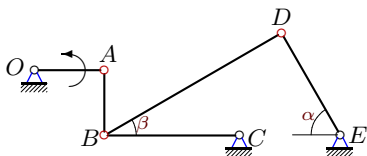
K19.



$\omega_{BC}=3, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=56, BC=25, BD=26,$
 $DE=24.$

Вариант 15

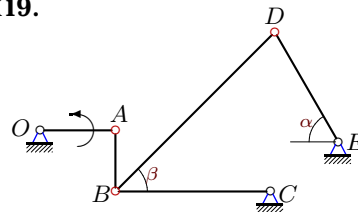
K19.



$\omega_{OA}=2, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=16, AB=15, BC=31, BD=47,$
 $DE=27.$

Вариант 16

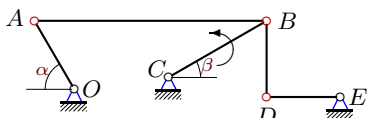
K19.



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

Вариант 17

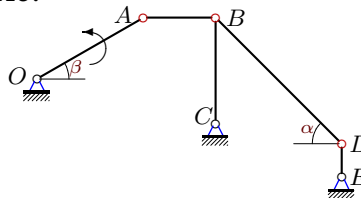
K19.



$\omega_{BC}=4, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=82, BC=40, BD=27,$
 $DE=26.$

Вариант 18

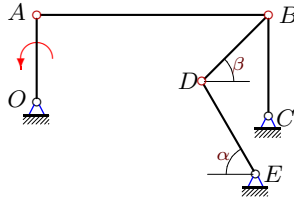
K19.



$\omega_{OA}=3, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=13, BC=19, BD=32,$
 $DE=6.$

Вариант 19

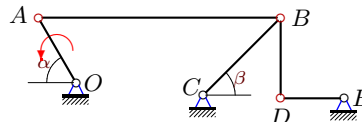
K19.



$\omega_{OA}=4, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=69, BC=30, BD=28,$
 $DE=32.$

Вариант 20

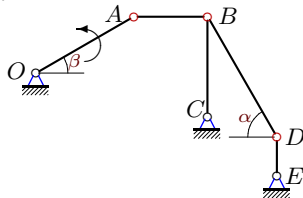
K19.



$\omega_{OA}=4, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=84, BC=38, BD=28,$
 $DE=22.$

Вариант 21

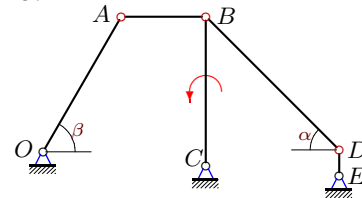
K19.



$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=17, BC=23, BD=32,$
 $DE=9.$

Вариант 22

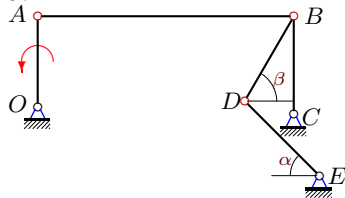
K19.



$\omega_{BC}=1, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=13, BC=23, BD=29,$
 $DE=4.$

Вариант 23

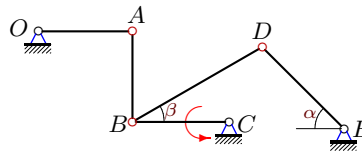
K19.



$\omega_{OA}=2, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=68, BC=26, BD=26,$
 $DE=28.$

Вариант 24

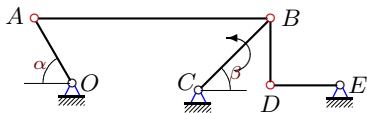
K19.



$\omega_{BC}=3, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=30, AB=29, BC=31, BD=48,$
 $DE=37.$

Вариант 25

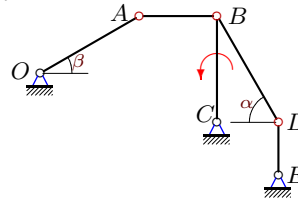
K19.



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

Вариант 26

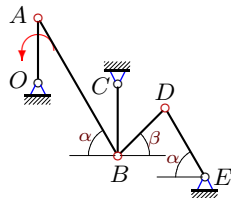
K19.



$\omega_{BC}=2, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=19, BC=26, BD=30,$
 $DE=13.$

Вариант 27

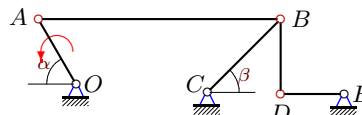
K19.



$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=64, BC=29, BD=27,$
 $DE=32.$

Вариант 28

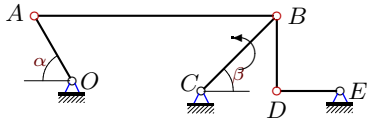
K19.



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

Вариант 29

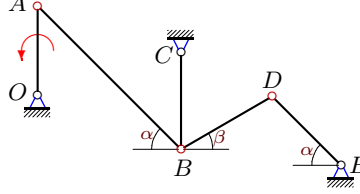
K19.



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

Вариант 30

K19.



$\omega_{OA}=2, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=50, BC=24, BD=26,$
 $DE=24.$

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	6.667	-9.897	4.000	0.000	16.000	-187.932	294.245	2.000	-42.426	200.000
2	-3.765	0.000	4.000	2.262	1.422	-2.824	31.059	3.000	5.064	-3.214
3	-3.346	0.000	3.000	1.673	-2.355	33.434	20.077	3.000	-13.844	-4.158
4	-1.000	0.000	1.000	0.663	0.553	-3.000	2.267	3.000	2.178	1.489
5	5.511	1.853	3.000	3.298	-3.536	25.653	8.642	1.000	13.542	-3.001
6	-1.036	0.000	1.000	0.604	-0.698	-0.491	1.904	4.000	0.640	-2.950
7	-0.917	0.000	1.000	0.643	0.493	-3.667	1.917	4.000	2.787	1.816
8	2.000	-2.931	1.100	0.000	5.500	1.000	0.057	9.945	-4.416	73.926
9	2.000	-2.425	1.077	-0.000	2.154	4.000	-3.557	10.407	-1.945	24.833
10	0.763	0.521	1.000	0.771	-1.232	3.791	2.157	4.000	6.064	-4.767
11	1.042	0.000	1.000	0.763	0.462	2.083	0.016	2.000	1.176	1.152
12	4.000	0.000	-1.500	-0.717	-1.308	1.000	26.400	-0.375	0.072	-1.893
13	3.000	0.000	2.690	1.495	1.784	3.000	0.336	2.690	-0.965	3.777
14	-3.409	0.000	3.000	2.112	-1.618	20.713	12.139	1.000	-6.937	-4.645
15	2.000	0.000	-1.032	-0.590	-0.593	3.000	6.469	-1.548	-0.735	-1.343
16	3.000	0.000	-1.455	-0.897	-1.301	3.000	16.448	-1.455	-0.915	-2.169
17	3.299	2.253	4.000	2.963	-5.329	15.274	3.614	4.000	50.841	-2.139
18	3.000	-4.397	1.737	-0.000	5.500	1.000	1.741	22.831	-5.488	92.994
19	4.000	0.000	3.467	1.923	2.379	3.000	0.804	2.600	-2.415	5.167
20	4.000	1.691	3.352	3.217	-4.094	3.000	-1.246	-7.520	16.734	9.739
21	3.000	-3.974	1.696	0.000	4.333	3.000	-0.981	22.177	-6.429	76.471
22	1.107	-1.021	1.000	0.000	5.750	0.854	-0.599	2.000	-5.328	38.813
23	2.000	0.000	1.846	1.351	0.887	2.000	0.109	1.846	0.224	1.758
24	-3.100	0.000	3.000	1.418	1.301	-1.033	19.562	1.000	2.838	-3.172
25	2.216	0.963	2.000	2.150	-2.067	8.333	2.679	4.000	13.041	-4.443
26	3.714	-4.740	2.000	0.000	4.000	-46.963	64.628	4.000	-6.933	21.856
27	3.000	0.000	-2.690	-1.495	1.784	3.000	13.869	23.816	2.967	-19.499
28	2.000	0.846	1.769	1.732	-2.047	3.000	0.540	-0.159	6.454	0.260
29	3.486	1.474	3.000	3.019	-3.568	12.855	3.378	3.000	22.845	-3.635
30	2.000	0.000	-1.833	-1.239	1.644	1.000	4.771	6.111	-1.135	-4.774