

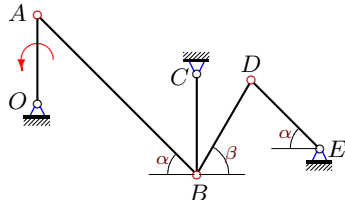
Уравнение трех угловых ускорений

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

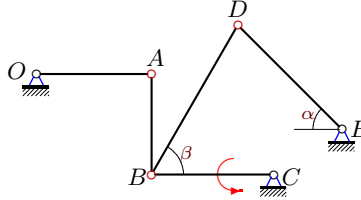
K19.



$\omega_{OA}=3$, $\varepsilon_{OA}=1$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=22$, $AB=56$, $BC=25$, $BD=27$,
 $DE=24$.

Вариант 2

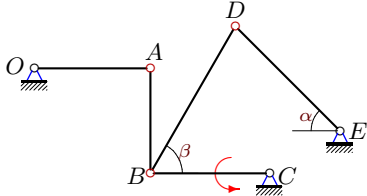
K19.



$\omega_{BC}=3$, $\varepsilon_{BC}=2$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=32$, $AB=28$, $BC=34$, $BD=48$,
 $DE=41$.

Вариант 3

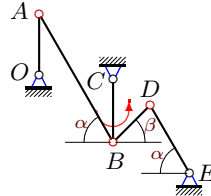
K19.



$\omega_{BC}=2$, $\varepsilon_{BC}=2$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=32$, $AB=29$, $BC=33$, $BD=47$,
 $DE=41$.

Вариант 4

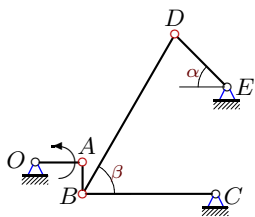
K19.



$\omega_{BC}=1$, $\varepsilon_{BC}=4$, $\alpha=60^\circ$, $\beta=45^\circ$,
 $OA=28$, $AB=68$, $BC=29$, $BD=24$,
 $DE=36$.

Вариант 5

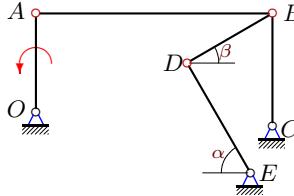
K19.



$\omega_{OA}=2$, $\varepsilon_{OA}=1$, $\alpha=45^\circ$, $\beta=60^\circ$,
 $OA=12$, $AB=8$, $BC=34$, $BD=47$,
 $DE=19$.

Вариант 6

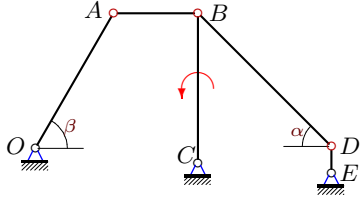
K19.



$\omega_{OA}=4$, $\varepsilon_{OA}=4$, $\alpha=60^\circ$, $\beta=30^\circ$,
 $OA=28$, $AB=67$, $BC=32$, $BD=28$,
 $DE=36$.

Вариант 7

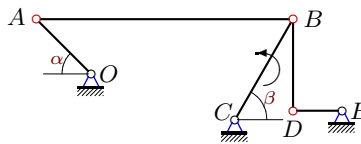
K19.



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

Вариант 8

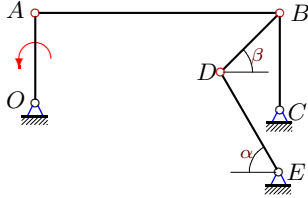
K19.



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

Вариант 9

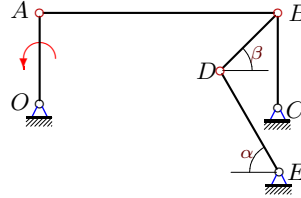
K19.



$\omega_{OA}=2, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=76, BC=30, BD=26,$
 $DE=36.$

Вариант 10

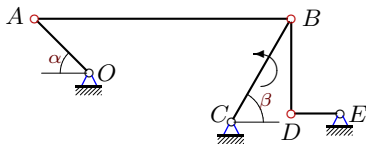
K19.



$\omega_{OA}=1, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=73, BC=29, BD=25,$
 $DE=36.$

Вариант 11

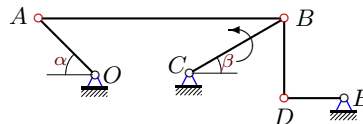
K19.



$\omega_{BC}=4, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=73, BC=34, BD=27,$
 $DE=14.$

Вариант 12

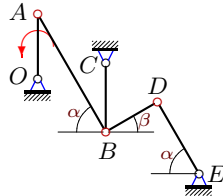
K19.



$\omega_{BC}=1, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=74, BC=33, BD=24,$
 $DE=18.$

Вариант 13

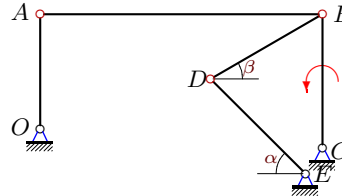
K19.



$\omega_{OA}=2, \varepsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=59, BC=30, BD=26,$
 $DE=36.$

Вариант 14

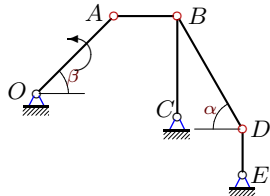
K19.



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

Вариант 15

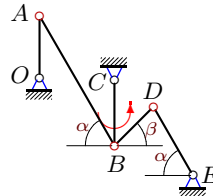
K19.



$\omega_{OA}=2, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=15, BC=24, BD=31,$
 $DE=11.$

Вариант 16

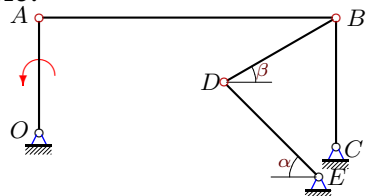
K19.



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

Вариант 17

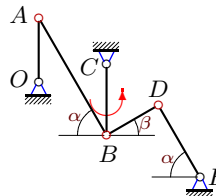
K19.



$\omega_{OA}=3, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=62, BC=27, BD=27,$
 $DE=28.$

Вариант 18

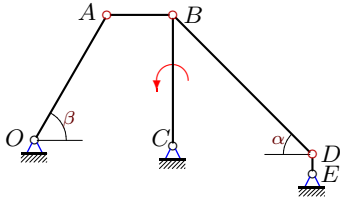
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=59, BC=31, BD=26,$
 $DE=36.$

Вариант 19

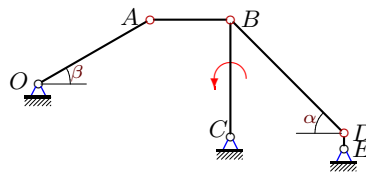
K19.



$\omega_{BC}=2, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=10, BC=20, BD=30,$
 $DE=3.$

Вариант 20

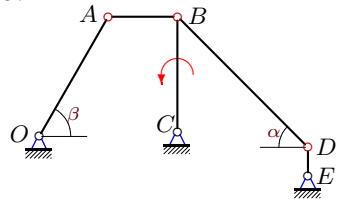
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=15, BC=22, BD=30,$
 $DE=3.$

Вариант 21

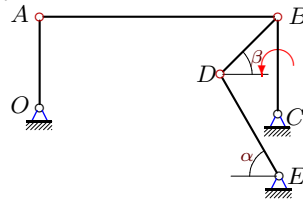
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=12, BC=20, BD=32,$
 $DE=5.$

Вариант 22

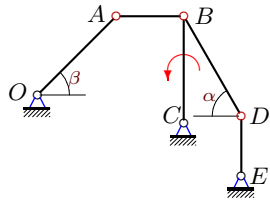
K19.



$\omega_{BC}=2, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=73, BC=30, BD=25,$
 $DE=36.$

Вариант 23

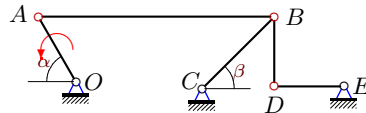
K19.



$\omega_{BC}=1, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=17, BC=27, BD=29,$
 $DE=15.$

Вариант 24

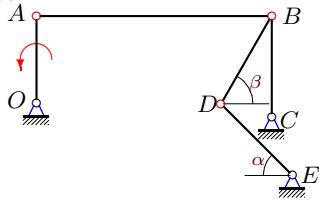
K19.



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

Вариант 25

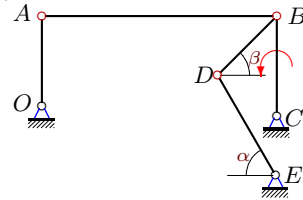
K19.



$\omega_{OA}=4, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=60^\circ,$
 $OA=24, AB=65, BC=28, BD=28,$
 $DE=28.$

Вариант 26

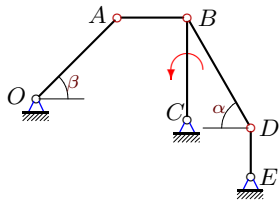
K19.



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

Вариант 27

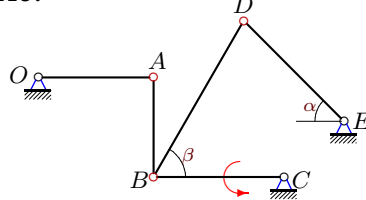
K19.



$\omega_{BC}=3, \varepsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=17, BC=25, BD=31,$
 $DE=12.$

Вариант 28

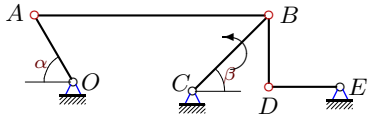
K19.



$\omega_{BC}=2, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=30, AB=26, BC=34, BD=47,$
 $DE=37.$

Вариант 29

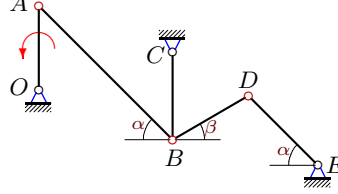
K19.



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

Вариант 30

K19.



$\omega_{OA}=1, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=54, BC=25, BD=25,$
 $DE=28.$

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	3.000	0.000	-2.640	-1.789	1.424	1.000	9.400	14.010	3.765	-10.877
2	-3.188	0.000	3.000	1.556	2.231	-2.125	22.540	2.000	1.953	-0.776
3	-2.063	0.000	2.000	1.028	1.443	-2.063	9.246	2.000	1.486	0.473
4	-1.036	0.000	1.000	0.625	-0.590	-0.491	1.736	4.000	0.983	-2.772
5	2.000	0.000	-0.706	-0.374	-1.133	1.000	8.118	-0.353	-0.422	-1.014
6	4.000	0.000	3.500	2.000	2.694	4.000	0.836	3.500	-0.791	5.028
7	1.107	-1.021	1.000	0.000	5.750	0.854	-0.599	2.000	-5.328	38.813
8	5.511	1.853	3.000	3.298	-3.536	25.653	8.642	1.000	13.542	-3.001
9	2.000	0.000	1.867	1.115	1.139	4.000	0.098	3.733	0.817	3.126
10	1.000	0.000	0.966	0.580	0.569	4.000	0.013	3.862	1.923	2.499
11	7.571	2.545	4.000	4.362	-4.857	46.308	15.863	1.000	23.397	-4.261
12	0.972	0.609	1.000	0.688	-1.588	2.956	1.444	2.000	4.456	-2.889
13	2.000	0.000	-1.867	-1.077	1.347	4.000	7.340	8.768	-0.936	-6.942
14	4.667	0.000	4.000	3.037	3.586	2.333	1.266	2.000	0.709	4.316
15	2.000	-2.451	1.532	0.000	3.343	3.000	-2.530	9.118	-4.295	30.376
16	-2.143	0.000	2.000	1.242	-1.220	11.091	7.311	4.000	-3.625	-4.170
17	3.000	0.000	2.667	1.952	2.305	2.000	0.387	1.778	0.781	2.706
18	-3.321	0.000	3.000	1.788	-2.237	31.938	19.929	4.000	-13.839	-4.548
19	2.099	-2.309	2.000	0.000	13.333	-4.294	5.122	1.000	-21.370	157.778
20	3.667	-5.081	2.000	0.000	14.667	-51.886	76.785	2.000	-26.273	200.444
21	3.849	-3.849	4.000	0.000	16.000	-15.182	14.176	2.000	-42.426	200.000
22	2.143	0.000	2.000	1.242	1.220	4.286	0.117	4.000	0.814	3.372
23	1.364	-1.588	1.000	0.000	1.800	1.429	-1.087	4.000	-1.490	9.694
24	2.000	0.869	1.805	1.865	-1.865	4.000	0.971	0.743	7.614	-0.880
25	4.000	0.000	3.429	2.510	1.775	2.000	0.844	1.714	-2.402	4.061
26	3.321	0.000	3.000	1.852	1.891	4.429	0.409	4.000	-1.107	4.673
27	3.788	-4.412	3.000	0.000	6.250	-26.011	33.770	4.000	-15.726	43.516
28	-2.267	0.000	2.000	1.059	1.648	-1.133	11.159	1.000	0.736	-0.331
29	3.412	1.535	3.000	3.182	-3.182	13.243	3.880	4.000	23.914	-4.822
30	1.000	0.000	-0.960	-0.703	0.768	2.000	1.232	-0.038	-1.520	0.220