

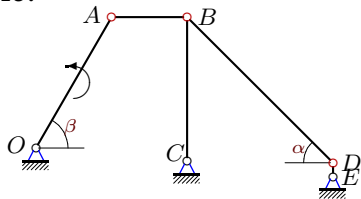
Уравнение трех угловых ускорений

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

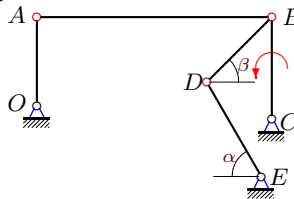
K19.



$\omega_{OA}=1, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=11, BC=21, BD=30,$
 $DE=2.$

Вариант 2

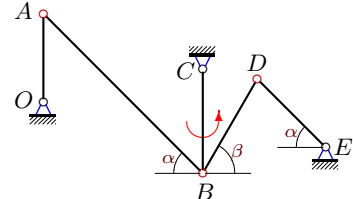
K19.



$\omega_{BC}=4, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=69, BC=30, BD=27,$
 $DE=32.$

Вариант 3

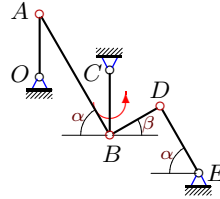
K19.



$\omega_{BC}=4, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=56, BC=26, BD=27,$
 $DE=24.$

Вариант 4

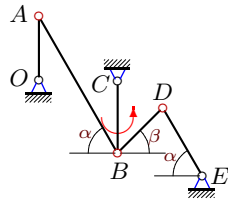
K19.



$\omega_{BC}=1, \varepsilon_{BC}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=58, BC=27, BD=24,$
 $DE=32.$

Вариант 5

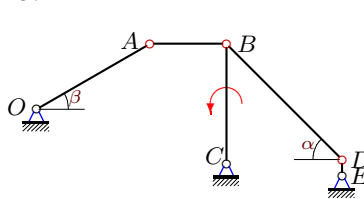
K19.



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

Вариант 6

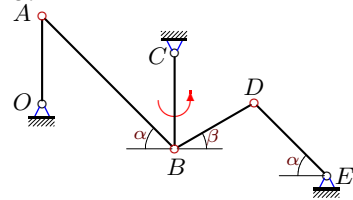
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=14, BC=22, BD=30,$
 $DE=3.$

Вариант 7

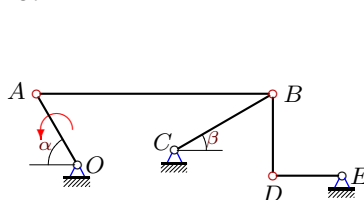
K19.



$\omega_{BC}=2, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=51, BC=26, BD=25,$
 $DE=28.$

Вариант 8

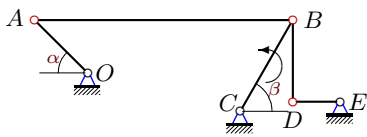
K19.



$\omega_{OA}=2, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=75, BC=36, BD=26,$
 $DE=22.$

Вариант 9

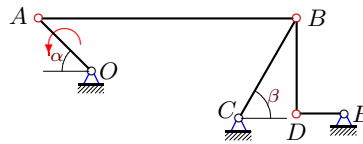
K19.



$\omega_{BC}=1, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=76, BC=31, BD=24,$
 $DE=14.$

Вариант 10

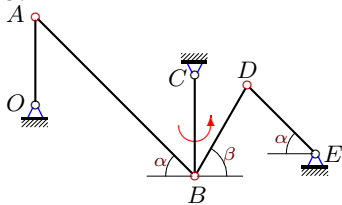
K19.



$\omega_{OA}=4, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=76, BC=34, BD=28,$
 $DE=14.$

Вариант 11

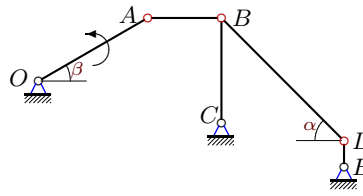
K19.



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

Вариант 12

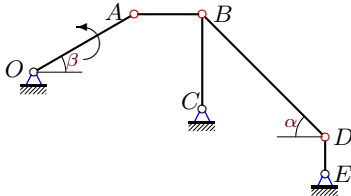
K19.



$\omega_{OA}=4, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=14, BC=20, BD=33,$
 $DE=5.$

Вариант 13

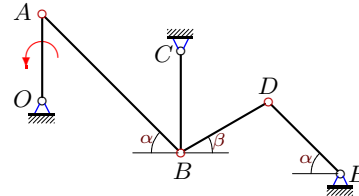
K19.



$\omega_{OA}=4, \varepsilon_{OA}=1, \alpha=45^\circ, \beta=30^\circ,$
 $OA=22, AB=13, BC=18, BD=33,$
 $DE=7.$

Вариант 14

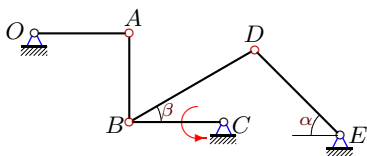
K19.



$\omega_{OA}=4, \varepsilon_{OA}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=54, BC=28, BD=28,$
 $DE=28.$

Вариант 15

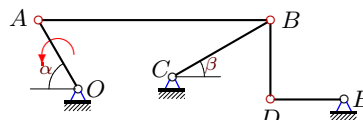
K19.



$\omega_{BC}=4, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=32, AB=30, BC=32, BD=49,$
 $DE=41.$

Вариант 16

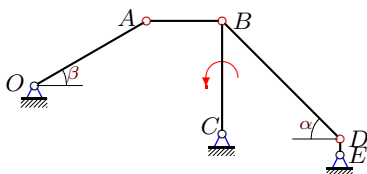
K19.



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

Вариант 17

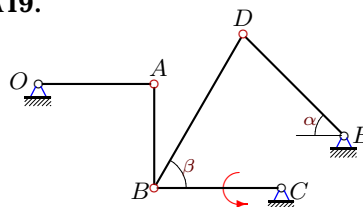
K19.



$\omega_{BC}=3, \varepsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=24, AB=14, BC=21, BD=31,$
 $DE=3.$

Вариант 18

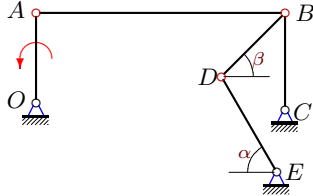
K19.



$\omega_{BC}=1, \varepsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=30, AB=27, BC=33, BD=46,$
 $DE=37.$

Вариант 19

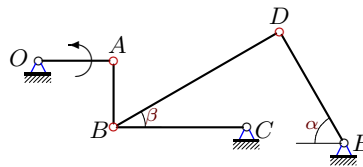
K19.



$\omega_{OA}=2, \epsilon_{OA}=3, \alpha=60^\circ, \beta=45^\circ,$
 $OA=26, AB=72, BC=28, BD=26,$
 $DE=32.$

Вариант 20

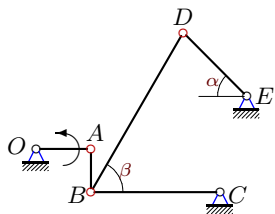
K19.



$\omega_{OA}=1, \epsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=18, AB=16, BC=32, BD=46,$
 $DE=31.$

Вариант 21

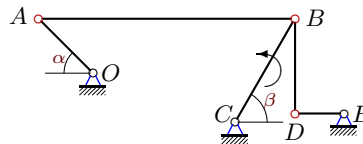
K19.



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

Вариант 22

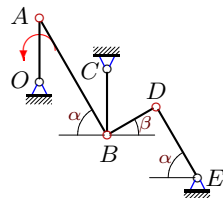
K19.



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

Вариант 23

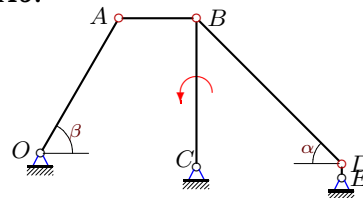
K19.



$\omega_{OA}=1, \epsilon_{OA}=4, \alpha=60^\circ, \beta=30^\circ,$
 $OA=28, AB=59, BC=29, BD=25,$
 $DE=36.$

Вариант 24

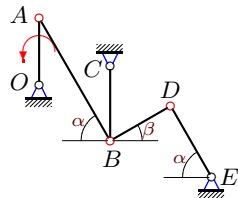
K19.



$\omega_{BC}=1, \epsilon_{BC}=1, \alpha=45^\circ, \beta=60^\circ,$
 $OA=22, AB=11, BC=21, BD=29,$
 $DE=2.$

Вариант 25

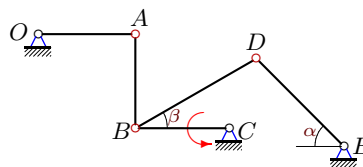
K19.



$\omega_{OA}=3, \epsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=55, BC=29, BD=27,$
 $DE=32.$

Вариант 26

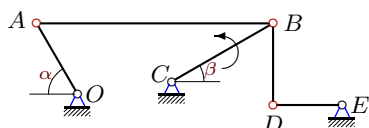
K19.



$\omega_{BC}=1, \epsilon_{BC}=2, \alpha=45^\circ, \beta=30^\circ,$
 $OA=32, AB=31, BC=31, BD=46,$
 $DE=41.$

Вариант 27

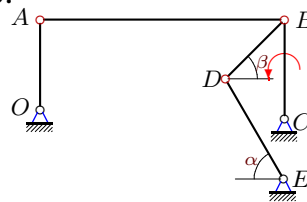
K19.



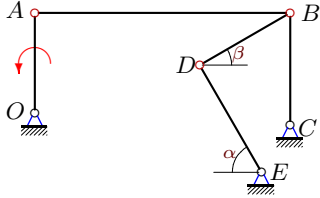
$\omega_{BC}=3, \epsilon_{BC}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=75, BC=37, BD=26,$
 $DE=22.$

Вариант 28

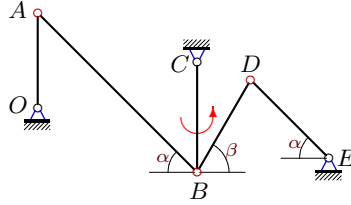
K19.



$\omega_{BC}=3, \epsilon_{BC}=4, \alpha=60^\circ, \beta=45^\circ,$
 $OA=28, AB=76, BC=31, BD=26,$
 $DE=36.$

Вариант 29**K19.**

$\omega_{OA}=3, \varepsilon_{OA}=3, \alpha=60^\circ, \beta=30^\circ,$
 $OA=26, AB=66, BC=29, BD=27,$
 $DE=32.$

Вариант 30**K19.**

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

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	1.000	-1.000	0.907	-0.000	9.526	1.000	-0.839	1.955	-7.741	102.633
2	4.615	0.000	4.000	2.301	2.745	3.462	1.070	3.000	-3.549	6.397
3	-4.727	0.000	4.000	2.820	-2.243	40.074	22.921	1.000	-13.074	-8.189
4	-1.038	0.000	1.000	0.563	-0.731	0.551	1.898	3.000	0.001	-2.377
5	-3.346	0.000	3.000	1.732	-1.990	33.434	17.254	3.000	-11.511	-6.499
6	3.667	-5.444	2.000	0.000	14.667	-54.191	85.691	2.000	-26.273	200.444
7	-2.167	0.000	2.000	1.523	-1.665	6.861	6.008	2.000	-5.359	-0.702
8	2.000	1.387	2.502	1.732	-3.545	3.000	-0.598	-1.966	16.781	4.361
9	1.726	0.557	1.000	1.119	-1.107	4.184	1.317	1.000	2.479	-1.335
10	4.000	1.291	2.113	2.222	-2.566	1.000	0.363	-6.198	-0.514	7.042
11	-3.409	0.000	3.000	2.112	-1.618	20.713	12.139	1.000	-6.937	-4.645
12	4.000	-5.938	2.400	0.000	9.600	2.000	2.516	42.513	-14.811	239.174
13	4.000	-5.862	2.444	0.000	6.286	1.000	3.799	42.367	-7.243	133.089
14	4.000	0.000	-3.429	-2.510	3.074	2.000	18.677	23.755	-2.686	-18.329
15	-4.000	0.000	4.000	1.912	1.616	-2.000	34.133	2.000	5.363	-5.164
16	4.000	2.732	4.850	3.464	-6.462	4.000	-7.290	-16.493	56.087	27.144
17	5.250	-7.794	3.000	0.000	21.000	-115.115	181.026	2.000	-51.733	392.000
18	-1.100	0.000	1.000	0.525	0.800	-1.100	2.567	1.000	0.592	0.522
19	2.000	0.000	1.857	1.035	1.190	3.000	0.103	2.786	0.313	2.713
20	1.000	0.000	-0.563	-0.339	-0.290	4.000	1.758	-2.250	-1.302	-1.274
21	2.000	0.000	-0.848	-0.436	-1.091	2.000	7.251	-0.848	-0.619	-1.543
22	7.571	2.545	4.000	4.362	-4.857	46.308	15.863	1.000	23.397	-4.261
23	1.000	0.000	-0.966	-0.560	0.674	4.000	1.866	-0.575	-1.923	0.243
24	1.102	-1.102	1.000	0.000	10.500	-0.301	0.496	1.000	-9.729	110.250
25	3.000	0.000	-2.690	-1.444	2.111	3.000	16.138	23.816	0.780	-20.209
26	-0.969	0.000	1.000	0.493	0.391	-1.938	1.969	2.000	1.273	0.429
27	2.465	1.709	3.000	2.135	-4.369	9.052	2.455	3.000	29.382	-2.186
28	3.321	0.000	3.000	1.852	1.891	4.429	0.393	4.000	-1.107	4.673
29	3.000	0.000	2.690	1.444	2.111	3.000	0.367	2.690	-0.003	3.629
30	-4.667	0.000	4.000	3.037	-2.071	38.111	24.083	2.000	-12.760	-7.324