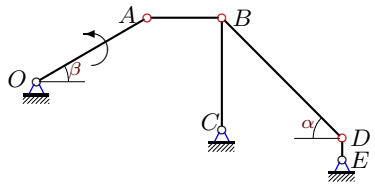
Уравнение трех угловых ускорений

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/с^2. Стержни, положение которых не определено углом, вертикальны или горизонтальны.

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

Вариант 1

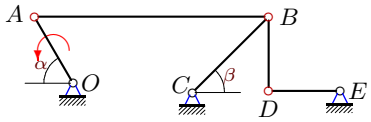
***K*19.**



ω_{OA}=3, ε_{OA}=2, α=45°, β=30°, OA=24, AB=14, BC=21, BD=32, DE=4.

Вариант 2

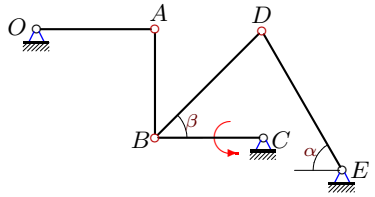
***K*19.**



ω_{OA}=3, ε_{OA}=4, α=60°, β=45°, OA=28, AB=85, BC=39, BD=27, DE=26.

Вариант 3

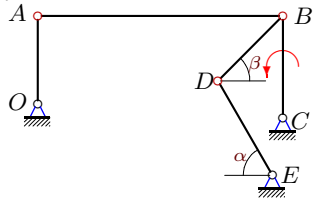
***K*19.**



ω_{BC}=1, ε_{BC}=4, α=60°, β=45°, OA=36, AB=33, BC=33, BD=46, DE=49.

Вариант 4

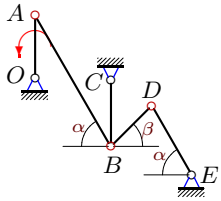
***K*19.**



ω_{BC}=4, ε_{BC}=3, α=60°, β=45°, OA=26, AB=72, BC=30, BD=27, DE=32.

Вариант 5

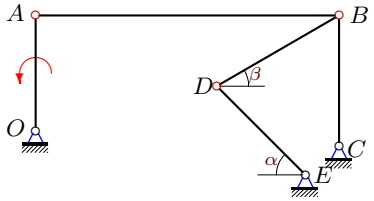
***K*19.**



ω_{OA}=2, ε_{OA}=4, α=60°, β=45°, OA=28, AB=68, BC=30, BD=26, DE=36.

Вариант 6

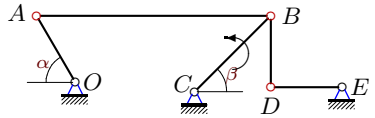
***K*19.**



ω_{OA}=3, ε_{OA}=1, α=45°, β=30°, OA=22, AB=58, BC=25, BD=27, DE=24.

Вариант 7

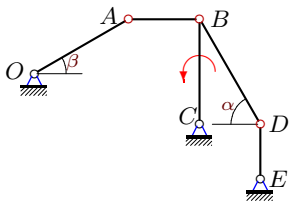
***K*19.**



ω_{BC}=3, ε_{BC}=4, α=60°, β=45°, OA=28, AB=85, BC=39, BD=26, DE=26.

Вариант 8

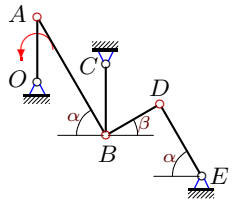
***K*19.**



ω_{BC}=1, ε_{BC}=3, α=60°, β=30°, OA=26, AB=17, BC=25, BD=29, DE=13.

Вариант 9

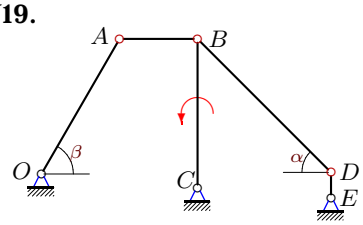
*K***19.**



ω_{OA}=3, ε_{OA}=4, α=60°, β=30°, OA=28, AB=59, BC=31, BD=27, DE=36.

Вариант 10

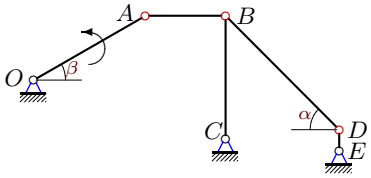
*K***19.**



ω_{BC}=1, ε_{BC}=2, α=45°, β=60°, OA=24, AB=12, BC=23, BD=29, DE=4.

Вариант 11

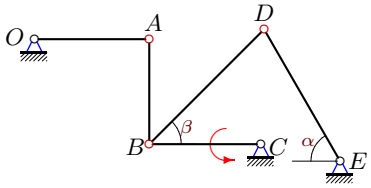
*K***19.**



ω_{OA}=1, ε_{OA}=2, α=45°, β=30°, OA=24, AB=15, BC=23, BD=30, DE=4.

Вариант 12

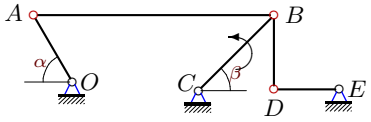
*K***19.**



ω_{BC}=3, ε_{BC}=3, α=60°, β=45°, OA=34, AB=31, BC=33, BD=48, DE=45.

Вариант 13

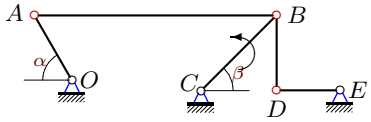
*K***19.**



ω_{BC}=2, ε_{BC}=3, α=60°, β=45°, OA=26, AB=81, BC=36, BD=25, DE=22.

Вариант 14

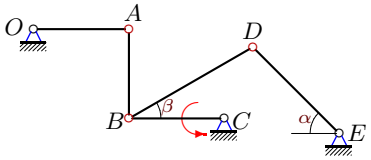
*K***19.**



ω_{BC}=3, ε_{BC}=3, α=60°, β=45°, OA=26, AB=84, BC=37, BD=26, DE=22.

Вариант 15

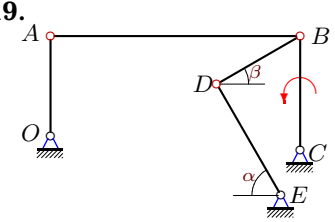
*K***19.**



ω_{BC}=3, ε_{BC}=2, α=45°, β=30°, OA=32, AB=30, BC=32, BD=48, DE=41.

Вариант 16

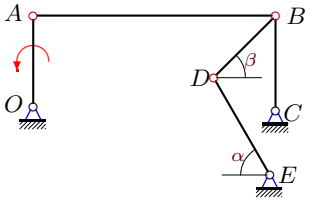
*K***19.**



ω_{BC}=4, ε_{BC}=4, α=60°, β=30°, OA=28, AB=70, BC=32, BD=27, DE=36.

Вариант 17

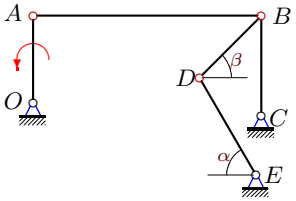
*K***19.**



ω_{OA}=1, ε_{OA}=3, α=60°, β=45°, OA=26, AB=69, BC=27, BD=25, DE=32.

Вариант 18

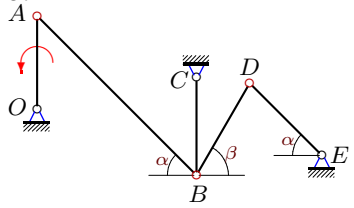
*K***19.**



ω_{OA}=4, ε_{OA}=4, α=60°, β=45°, OA=28, AB=73, BC=32, BD=28, DE=36.

Вариант 19

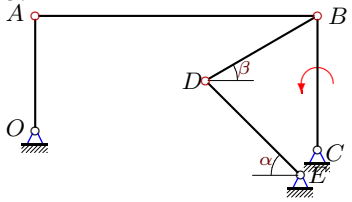
*K***19.**



ω_{OA}=1, ε_{OA}=1, α=45°, β=60°, OA=22, AB=53, BC=23, BD=25, DE=24.

Вариант 20

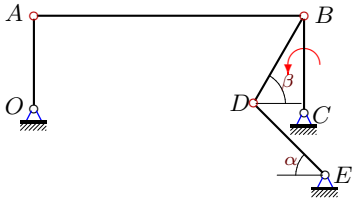
*K***19.**



ω_{BC}=4, ε_{BC}=2, α=45°, β=30°, OA=24, AB=59, BC=28, BD=27, DE=28.

Вариант 21

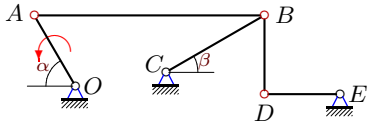
*K***19.**



ω_{BC}=1, ε_{BC}=1, α=45°, β=60°, OA=22, AB=64, BC=23, BD=24, DE=24.

Вариант 22

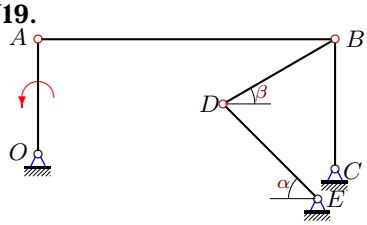
*K***19.**



ω_{OA}=3, ε_{OA}=4, α=60°, β=30°, OA=28, AB=79, BC=39, BD=27, DE=26.

Вариант 23

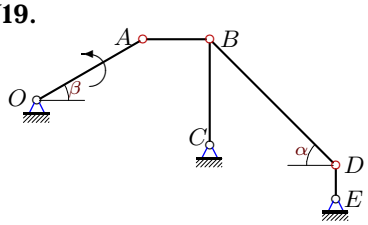
*K***19.**



ω_{OA}=3, ε_{OA}=2, α=45°, β=30°, OA=24, AB=62, BC=27, BD=27, DE=28.

Вариант 24

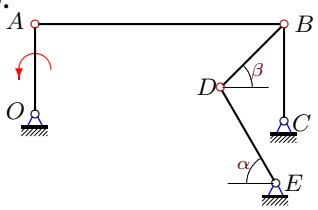
*K***19.**



ω_{OA}=3, ε_{OA}=1, α=45°, β=30°, OA=22, AB=12, BC=19, BD=32, DE=6.

Вариант 25

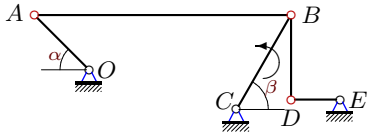
*K***19.**



ω_{OA}=2, ε_{OA}=3, α=60°, β=45°, OA=26, AB=72, BC=28, BD=26, DE=32.

Вариант 26

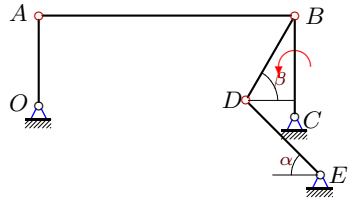
*K***19.**



ω_{BC}=1, ε_{BC}=1, α=45°, β=60°, OA=22, AB=73, BC=31, BD=24, DE=14.

Вариант 27

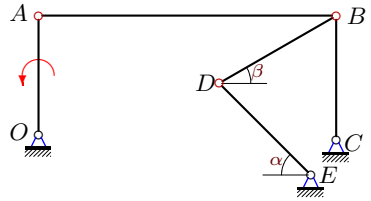
*K***19.**



ω_{BC}=3, ε_{BC}=2, α=45°, β=60°, OA=24, AB=68, BC=27, BD=26, DE=28.

Вариант 28

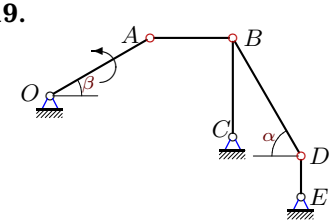
*K***19.**



ω_{OA}=1, ε_{OA}=1, α=45°, β=30°, OA=22, AB=55, BC=23, BD=25, DE=24.

Вариант 29

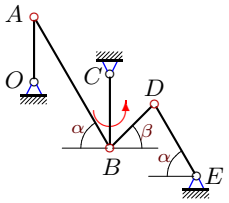
*K***19.**



ω_{OA}=4, ε_{OA}=4, α=60°, β=30°, OA=28, AB=20, BC=24, BD=33, DE=10.

Вариант 30

*K***19.**



ω_{BC}=4, ε_{BC}=4, α=60°, β=45°, OA=28, AB=65, BC=32, BD=27, DE=36.

Ответы

	ω_{OA}	ω_{AB}	ω_{BC}	ω_{BD}	ω_{DE}	ε_{OA}	ε_{AB}	ε_{BC}	ε_{BD}	ε_{DE}
1	3.000	−4.454	1.714	−0.000	9.000	2.000	0.337	23.275	−11.592	187.765
2	3.000	1.350	2.638	2.694	−2.798	4.000	0.192	−2.393	12.201	2.381
3	−0.917	0.000	1.000	0.643	0.493	−3.667	1.917	4.000	2.787	1.816
4	4.615	0.000	4.000	2.301	2.745	3.462	1.026	3.000	−3.549	6.397
5	2.000	0.000	−1.867	−1.115	1.139	4.000	6.369	8.768	0.107	−6.893
6	3.000	0.000	2.640	1.789	2.466	1.000	0.410	0.880	0.609	2.479
7	3.412	1.535	3.000	3.182	−3.182	13.243	3.880	4.000	23.914	−4.822
8	1.923	−2.547	1.000	0.000	1.923	−9.120	13.438	3.000	−1.592	8.844
9	3.000	0.000	−2.710	−1.556	2.021	4.000	16.258	23.184	0.564	−18.636
10	1.107	−1.107	1.000	0.000	5.750	0.799	−0.595	2.000	−5.328	38.813
11	1.000	−1.386	0.522	0.000	3.000	2.000	−2.389	3.199	−1.402	25.831
12	−2.912	0.000	3.000	1.849	1.611	−2.912	18.880	3.000	3.451	−0.140
13	2.261	0.991	2.000	2.036	−2.314	7.329	2.283	3.000	11.840	−3.556
14	3.486	1.474	3.000	3.019	−3.568	12.855	3.378	3.000	22.845	−3.635
15	−3.000	0.000	3.000	1.464	1.212	−2.000	19.200	2.000	3.495	−2.498
16	4.571	0.000	4.000	2.370	3.079	4.571	1.045	4.000	−1.410	5.976
17	1.000	0.000	0.963	0.538	0.595	3.000	0.014	2.889	1.264	2.028
18	4.000	0.000	3.500	2.071	2.277	4.000	0.767	3.500	−2.429	5.407
19	1.000	0.000	−0.957	−0.644	0.475	1.000	1.149	0.915	−0.113	−0.853
20	4.667	0.000	4.000	3.037	3.586	2.333	1.266	2.000	0.709	4.316
21	1.045	0.000	1.000	0.702	0.496	1.045	0.016	1.000	0.387	0.780
22	3.000	2.127	3.731	2.694	−4.846	4.000	−3.073	−7.271	34.773	12.345
23	3.000	0.000	2.667	1.952	2.305	2.000	0.387	1.778	0.781	2.706
24	3.000	−4.763	1.737	−0.000	5.500	1.000	1.886	23.933	−5.488	96.485
25	2.000	0.000	1.857	1.035	1.190	3.000	0.103	2.786	0.313	2.713
26	1.726	0.580	1.000	1.119	−1.107	4.121	1.358	1.000	2.479	−1.335
27	3.375	0.000	3.000	2.281	1.497	2.250	0.447	2.000	−1.428	3.178
28	1.000	0.000	0.957	0.644	0.822	1.000	0.017	0.957	0.588	1.009
29	4.000	−4.850	2.333	−0.000	5.600	4.000	−0.183	38.099	−11.087	123.123
30	−4.571	0.000	4.000	2.454	−2.603	63.297	33.758	4.000	−22.286	−10.154