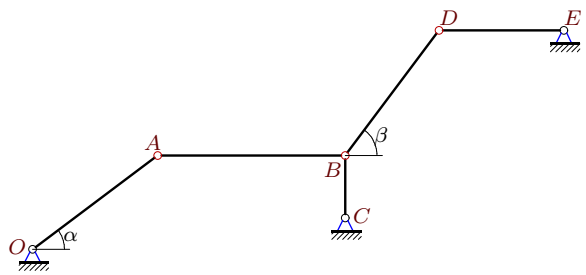
Кинематический анализ механизма (5 звеньев)

В указанном положении механизма задана угловая скорость одного из его звеньев. Длины звеньев даны в сантиметрах. Стержни, направление которых не указано, считать вертикальными или горизонтальными. Найти угловые скорости звеньев механизма.

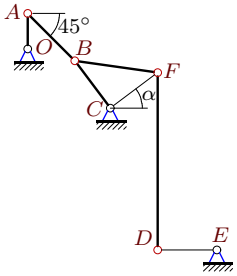
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.158.)

Задача 23.1. 2



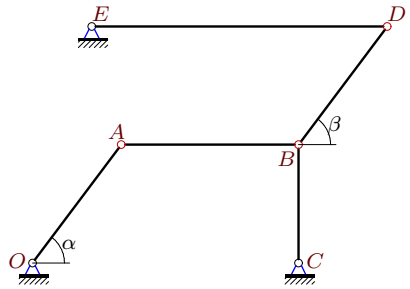
$\omega_{OA} = 48$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 4$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.2. 2



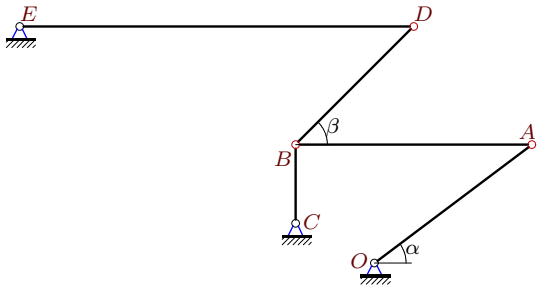
$\omega_{OA} = 20$ рад/с, $OA = 3$, DF=15, BC=CF=5, $AB = 4\sqrt{2}$, DE=5, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.3. 2



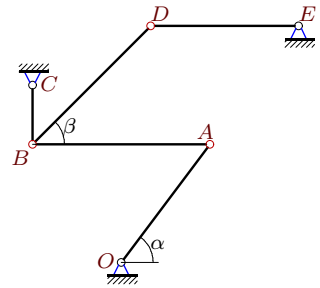
$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.4. 2



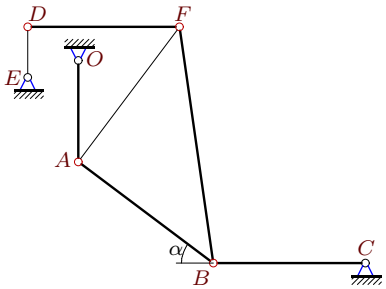
$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 10$, $BD = 3\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.5. 2



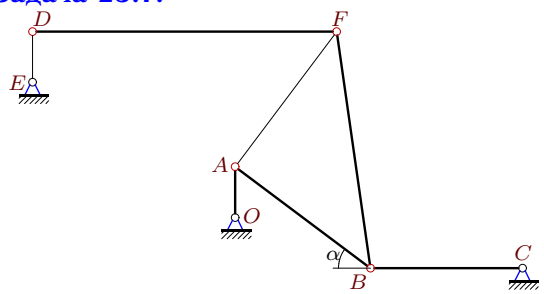
$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 5$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.6. 2



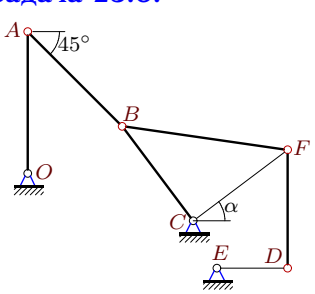
$\omega_{OA} = 9$ рад/с, $OA = 6$, AB=AF=10, $BC = 9$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.7. 2



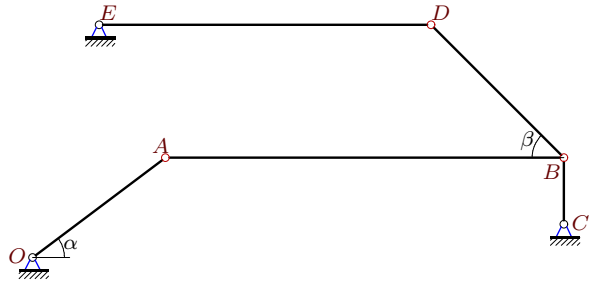
$\omega_{OA} = 18$ рад/с, $OA = 3$, AB=AF=10, $BC = 9$, DF=18, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.8. 2



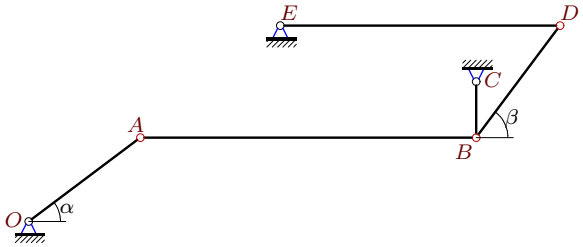
$\omega_{OA} = 10$ рад/с, $OA = 6$, DF=5, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.9.



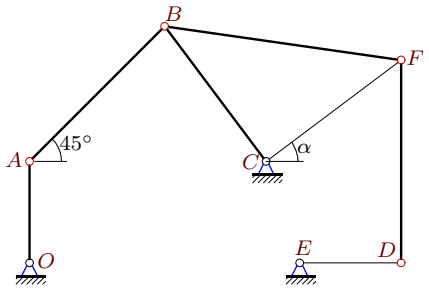
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$, $DE = 10$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.10.



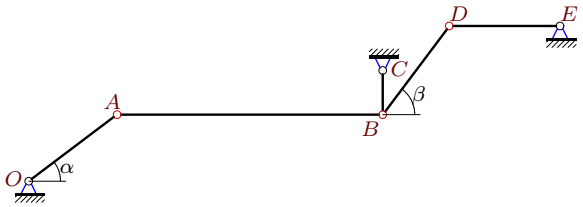
$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.11.



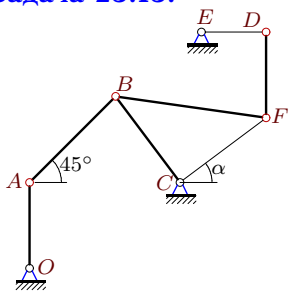
$\omega_{OA} = 28$ рад/с, $OA = 3$, DF=6, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.12.



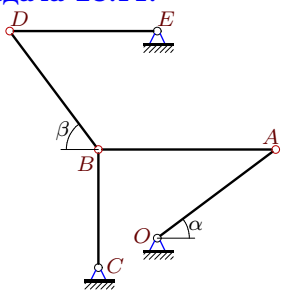
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.13.



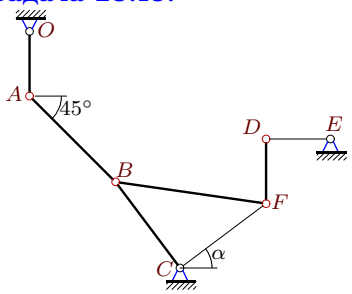
$\omega_{OA} = 21$ рад/с, $OA = 4$, DF=4, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.14.



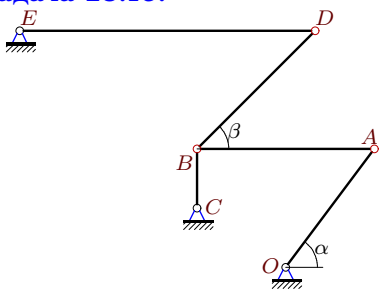
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.15.



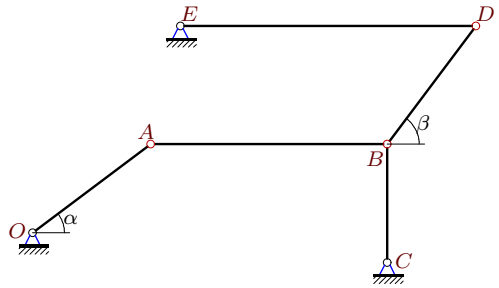
$\omega_{OA} = 4$ рад/с, $OA = 3$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.16.



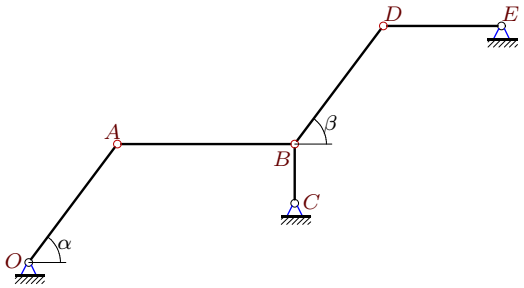
$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 10$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.17. 2



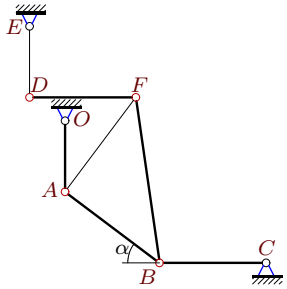
$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 4$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.18. 2



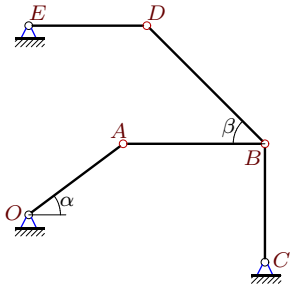
$\omega_{OA} = 4$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 4$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.19. 2



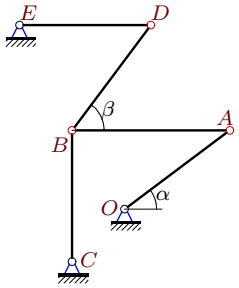
$\omega_{OA} = 9$ рад/с, $OA = 6$, AB=AF=10, $BC = 9$, DF=9, DE=6, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.20. 2



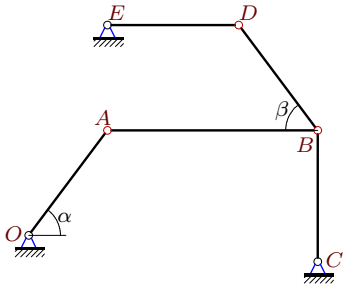
$\omega_{OA} = 15$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$, $DE = 5$, $BD = 5\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.21. 2



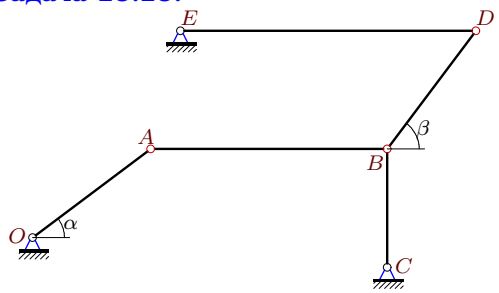
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.22. 2



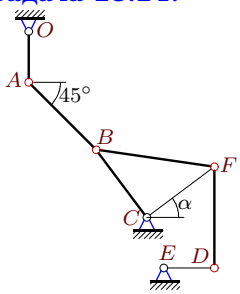
$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 5$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.23. 2



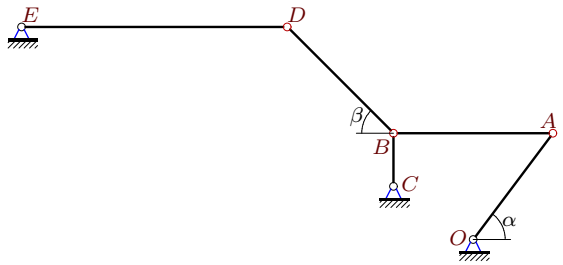
$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 4$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.24. 2



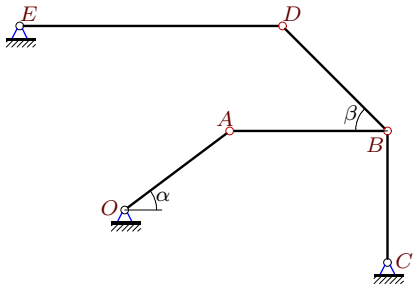
$\omega_{OA} = 4$ рад/с, $OA = 3$, DF=6, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.25.



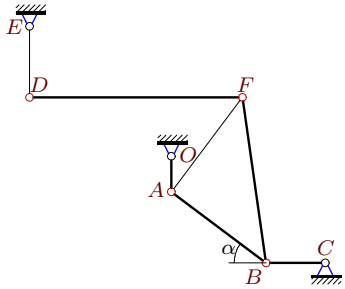
$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 10$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.26.



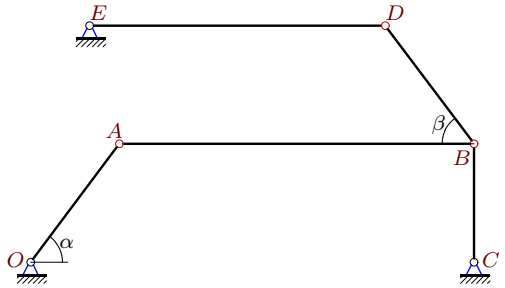
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$, $DE = 10$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.27.



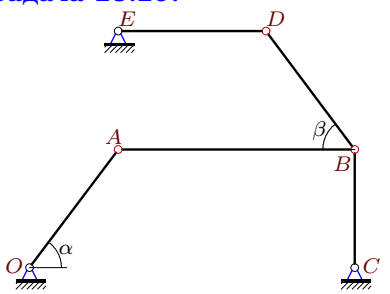
$\omega_{OA} = 30$ рад/с, $OA = 3$, AB=AF=10, $BC = 5$, DF=18, DE=6, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.28.



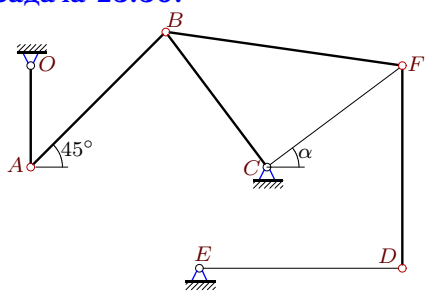
$\omega_{OA} = 20$ рад/с, $OA = 5$, $AB = 12$, $BC = 4$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.29.



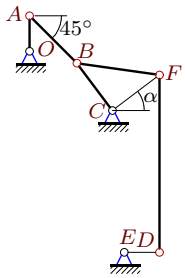
$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 4$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.30.



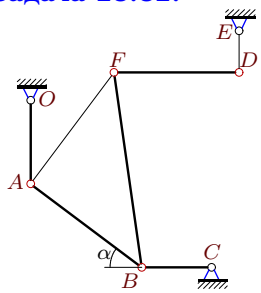
$\omega_{OA} = 28$ рад/с, $OA = 3$, DF=6, BC=CF=5, $AB = 4\sqrt{2}$, DE=6, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.31.



$\omega_{OA} = 20$ рад/с, $OA = 3$, DF=15, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.32.



$\omega_{OA} = 15$ рад/с, $OA = 6$, AB=AF=10, $BC = 5$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

23.2

Кинематический анализ механизма (5 звеньев)

№	ω_{AB}	ω_{BC}	ω_{DB}	ω_{DF}	ω_{DE}
1	32	72	36	–	27
2	45	60	–	12	48
3	5	10	10	–	3
4	20	45	30	–	9
5	5	20	10	–	8
6	9	8	–	6	42
7	9	8	–	3	42
8	45	60	–	36	80
9	20	90	45	–	18
10	40	180	90	–	27
11	9	12	–	6	16
12	20	90	45	–	27
13	9	12	–	9	16
14	40	45	45	–	27
15	9	12	–	12	16
16	5	20	10	–	4
17	20	30	30	–	9
18	2	8	4	–	3
19	9	8	–	6	21
20	10	9	9	–	9
21	40	36	45	–	27
22	15	32	40	–	24
23	20	30	30	–	9
24	9	12	–	6	16
25	5	20	10	–	4
26	40	36	45	–	18
27	15	24	–	5	35
28	5	20	20	–	6
29	15	40	40	–	24
30	9	12	–	6	8
31	45	60	–	12	80
32	15	24	–	10	70