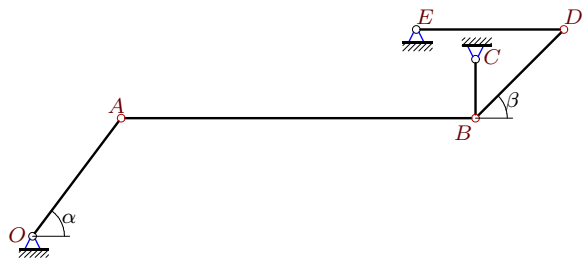
Кинематический анализ механизма (5 звеньев)

В указанном положении механизма задана угловая скорость одного из его звеньев. Длины звеньев даны в сантиметрах. Найти угловые скорости звеньев механизма.

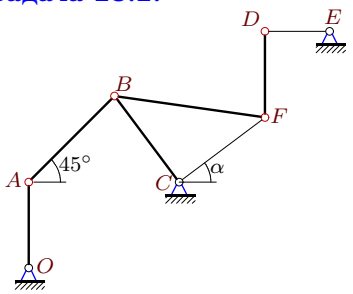
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2002.– 384 с. (с.158.)

Задача 23.1.



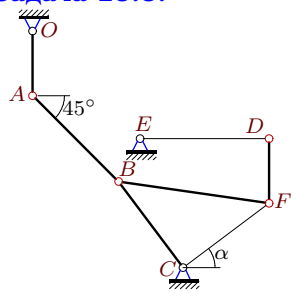
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$, $DE = 5$, $BD = 3\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.2.



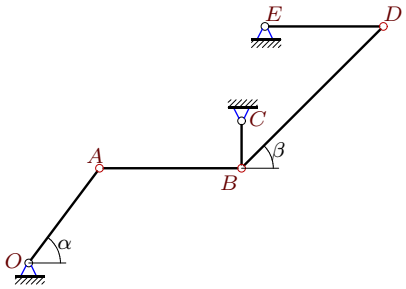
$\omega_{OA} = 21$ рад/с, $OA = 4$, DF=4, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.3.



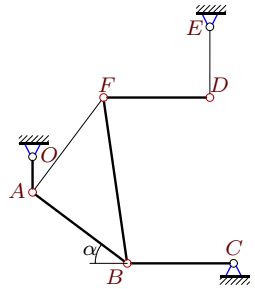
$\omega_{OA} = 4$ рад/с, $OA = 3$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=6, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.4.



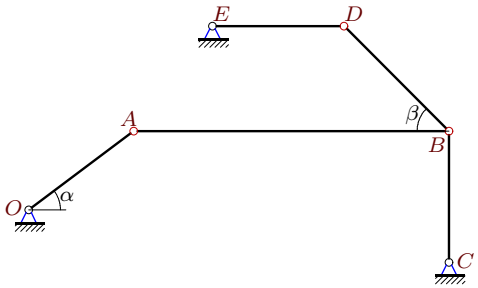
$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$, $DE = 5$, $BD = 6\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.5.



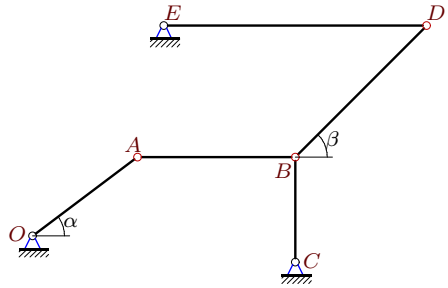
$\omega_{OA} = 18$ рад/с, $OA = 3$, AB=AF=10, $BC = 9$, DF=9, DE=6, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.6.



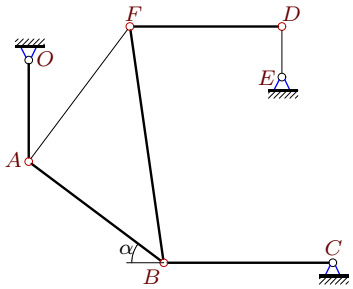
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 5$, $DE = 5$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.7.



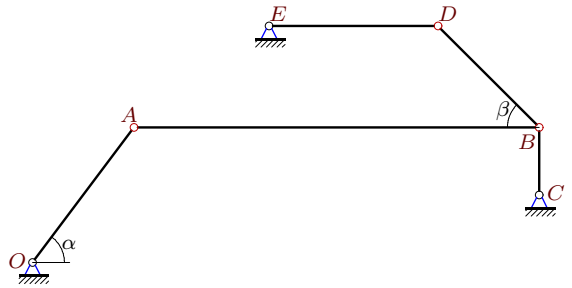
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 10$, $BD = 5\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.8.



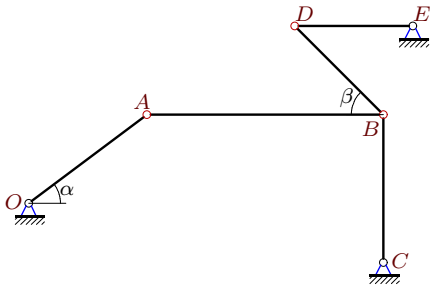
$\omega_{OA} = 15$ рад/с, $OA = 6$, AB=AF=10, $BC = 10$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.9. *II*



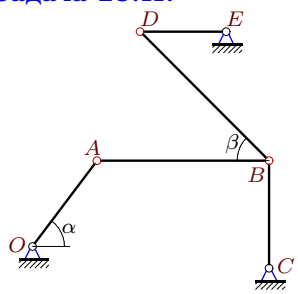
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$, $DE = 5$, $BD = 3\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.10. *II*



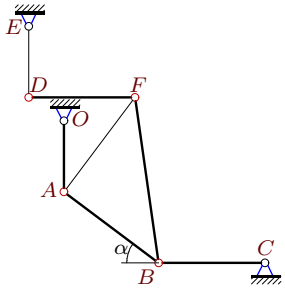
$\omega_{OA} = 20$ рад/с, $OA = 5$, $AB = 8$, $BC = 5$, $DE = 4$, $BD = 3\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.11. *II*



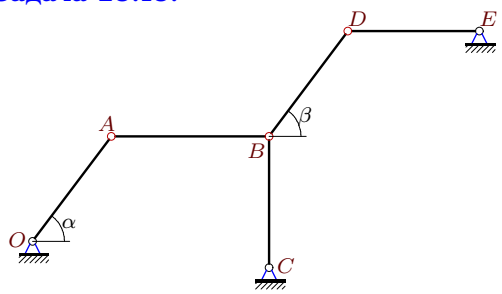
$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 8$, $BC = 5$, $DE = 4$, $BD = 6\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.12. *II*



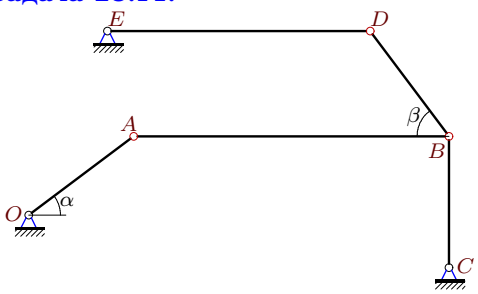
$\omega_{OA} = 9$ рад/с, $OA = 6$, AB=AF=10, $BC = 9$, DF=9, DE=6, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.13. *II*



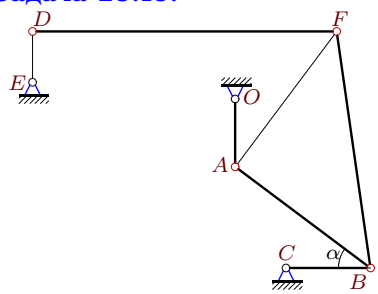
$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$, $DE = 5$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.14. *II*



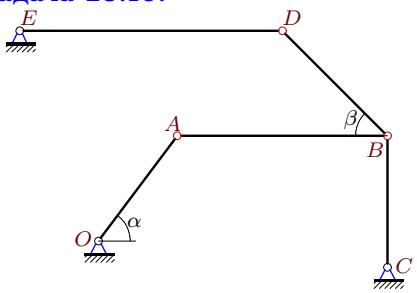
$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 12$, $BC = 5$, $DE = 10$, $BD = 5$, $\cos\alpha = 0.8$, $\cos\beta = 0.6$.

Задача 23.15. *II*



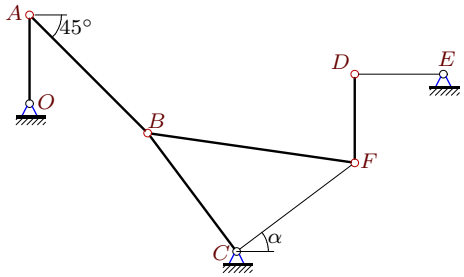
$\omega_{OA} = 45$ рад/с, $OA = 4$, AB=AF=10, $BC = 5$, DF=18, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.16. *II*



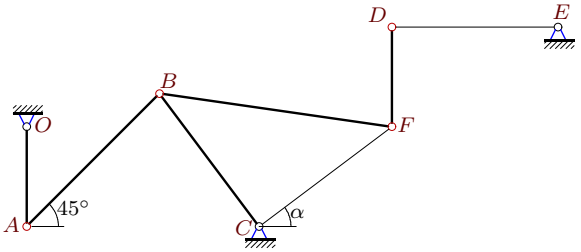
$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 5$, $DE = 10$, $BD = 4\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.17. *II*



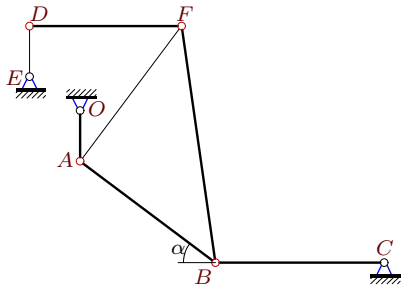
$\omega_{OA} = 4$ рад/с, $OA = 3$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.18. *II*



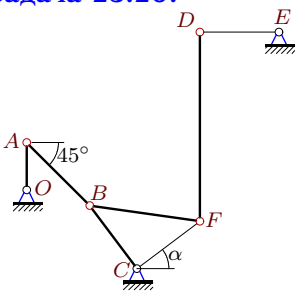
$\omega_{OA} = 140$ рад/с, $OA = 3$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=5, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.19. *II*



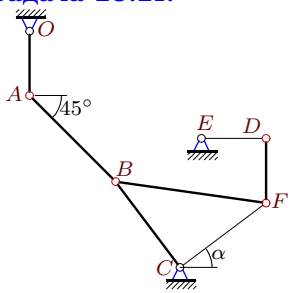
$\omega_{OA} = 30$ рад/с, $OA = 3$, AB=AF=10, $BC = 10$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.20. *II*



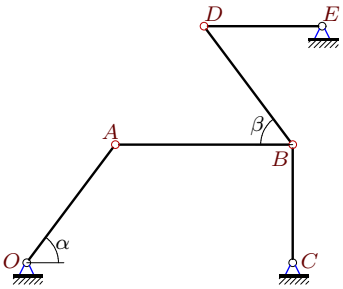
$\omega_{OA} = 20$ рад/с, $OA = 3$, DF=12, BC=CF=5, $AB = 4\sqrt{2}$, DE=5, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.21. *II*



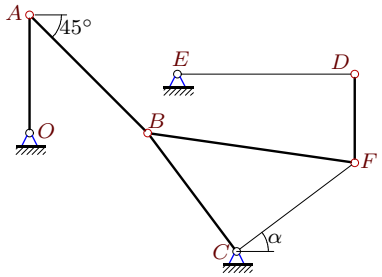
$\omega_{OA} = 4$ рад/с, $OA = 3$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=3, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.22. *II*



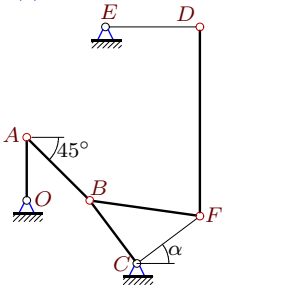
$\omega_{OA} = 4$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 4$, $BD = 5$, $\cos\alpha = 0.6$, $\cos\beta = 0.6$.

Задача 23.23. *II*



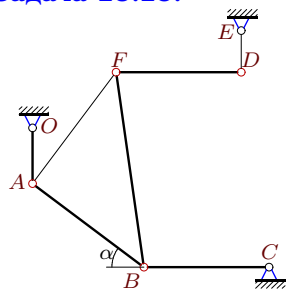
$\omega_{OA} = 3$ рад/с, $OA = 4$, DF=3, BC=CF=5, $AB = 4\sqrt{2}$, DE=6, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.24. *II*



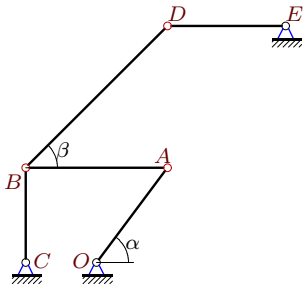
$\omega_{OA} = 3$ рад/с, $OA = 4$, DF=12, BC=CF=5, $AB = 4\sqrt{2}$, DE=6, $\cos\alpha$=0.8, $CB \perp CF$.

Задача 23.25. II



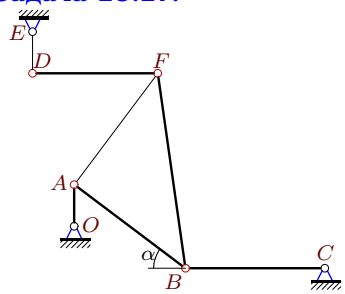
$\omega_{OA} = 27$ рад/с, $OA = 4$, AB=AF=10, $BC = 9$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.26. II



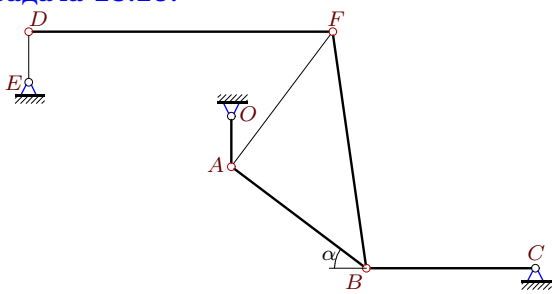
$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 5$, $BD = 6\sqrt{2}$, $\cos\alpha = 0.6$, $\beta = 45°$.

Задача 23.27. II



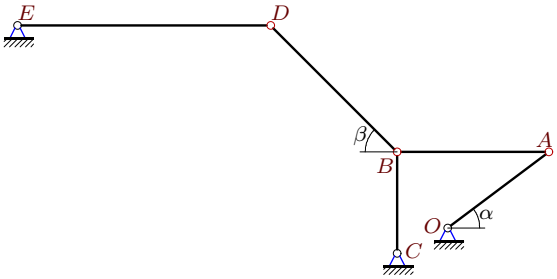
$\omega_{OA} = 30$ рад/с, $OA = 3$, AB=AF=10, $BC = 10$, DF=9, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.28. II



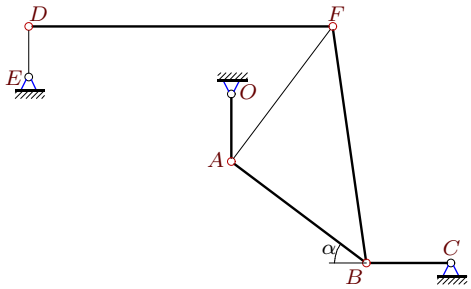
$\omega_{OA} = 30$ рад/с, $OA = 3$, AB=AF=10, $BC = 10$, DF=18, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.29. II



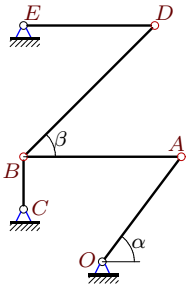
$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$, $DE = 10$, $BD = 5\sqrt{2}$, $\cos\alpha = 0.8$, $\beta = 45°$.

Задача 23.30. II



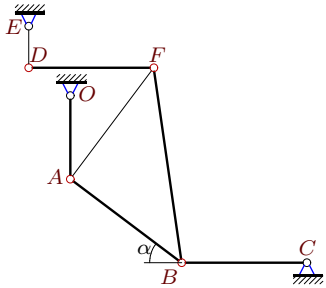
$\omega_{OA} = 45$ рад/с, $OA = 4$, AB=AF=10, $BC = 5$, DF=18, DE=3, $\cos\alpha$=0.8, $AB \perp AF$.

Задача 23.31. II



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

Задача 23.32. II



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

23.11

Кинематический анализ механизма (5 звеньев)

№	ω_{AB}	ω_{BC}	ω_{DB}	ω_{DF}	ω_{DE}
1	15	120	80	–	48
2	9	12	–	9	16
3	9	12	–	12	8
4	15	60	20	–	24
5	9	8	–	6	21
6	20	36	45	–	36
7	40	45	36	–	18
8	15	12	–	10	70
9	15	120	80	–	48
10	10	12	20	–	15
11	45	96	80	–	120
12	9	8	–	6	21
13	5	8	10	–	6
14	40	72	90	–	27
15	30	48	–	10	140
16	15	32	40	–	16
17	9	12	–	12	16
18	45	60	–	60	48
19	15	12	–	10	70
20	45	60	–	15	48
21	9	12	–	12	16
22	2	4	4	–	3
23	9	12	–	12	8
24	9	12	–	3	8
25	18	16	–	12	84
26	15	30	20	–	24
27	15	12	–	10	70
28	15	12	–	5	70
29	40	45	36	–	18
30	30	48	–	10	140
31	5	20	8	–	8
32	9	8	–	6	42