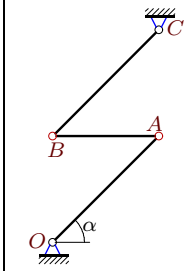
Кинематический анализ механизма. Угловые ускорения

В указанном положении механизма задана постоянная угловая скорость звена OA. Длины звеньев даны в сантиметрах. Звенья, направление которых не указано, принимать вертикальными или горизонтальными. Найти угловые ускорения звеньев AB и BC.

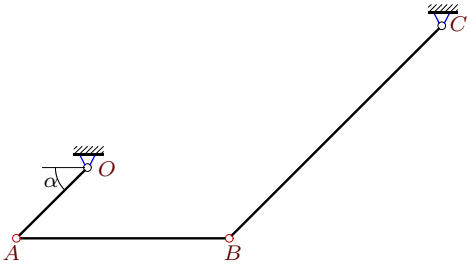
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.158.)

Задача 24.1. *10*



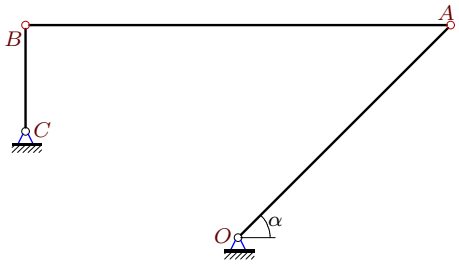
$\omega_{OAz} = 7$ рад/с, $OA||BC$,
$OA = 7\sqrt{2}$, $AB = 7$, $BC = 7\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.2. *10*



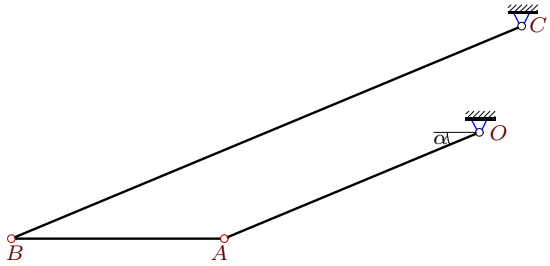
$\omega_{OAz} = 63$ рад/с, $OA||BC$,
$OA = 7\sqrt{2}$, $AB = 21$, $BC = 21\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.3. *10*



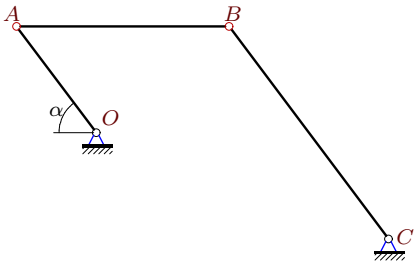
$\omega_{OAz} = -4$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 4$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.4. *10*



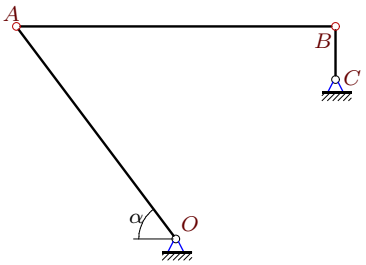
$\omega_{OAz} = -20$ рад/с, $OA||BC$,
$OA = 13$, $AB = 10$, $BC = 26$, $\operatorname{tg}\alpha = 5/12$.

Задача 24.5. *10*



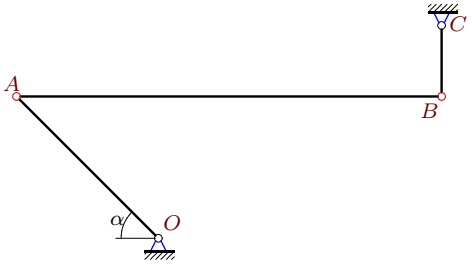
$\omega_{OAz} = 16$ рад/с, $OA||BC$,
$OA = 5$, $AB = 8$, $BC = 10$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.6. *10*



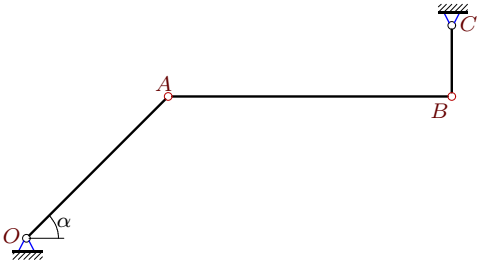
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.7. *10*



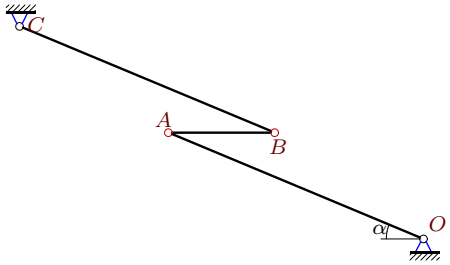
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 6$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.8. *10*



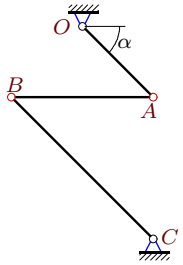
$\omega_{OAz} = 4$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 4$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.9. *10*



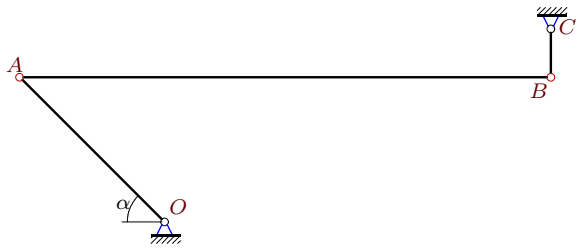
$\omega_{OAz} = -5$ рад/с, $OA||BC$,
$OA = 13$, $AB = 5$, $BC = 13$, $\operatorname{tg}\alpha = 5/12$.

Задача 24.10. *10*



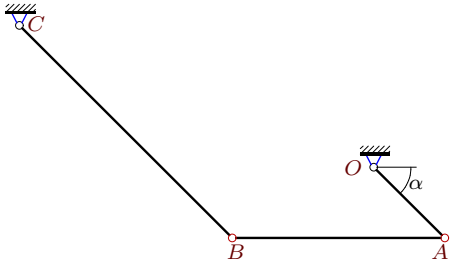
$\omega_{OAz} = 16$ рад/с, $OA||BC$,
$OA = 4\sqrt{2}$, $AB = 8$, $BC = 8\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.11. *10*



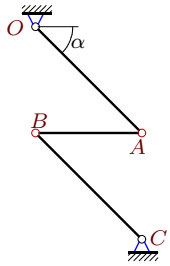
$\omega_{OAz} = 11$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 11$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.12. *10*



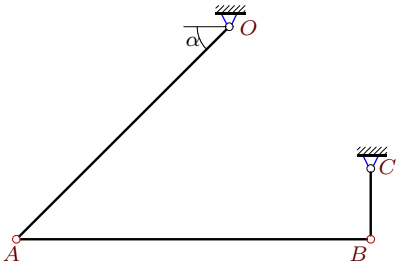
$\omega_{OAz} = -63$ рад/с, $OA||BC$,
$OA = 7\sqrt{2}$, $AB = 21$, $BC = 21\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.13. *10*



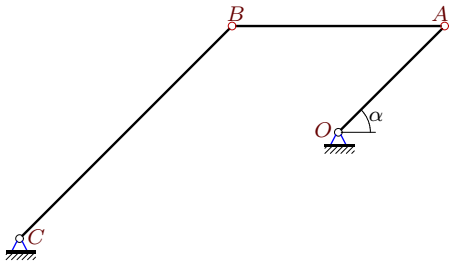
$\omega_{OAz} = 2$ рад/с, $OA||BC$,
$OA = 2\sqrt{2}$, $AB = 2$, $BC = 2\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.14. *10*



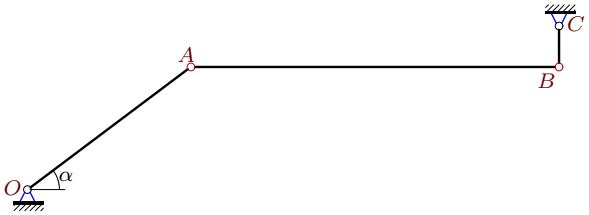
$\omega_{OAz} = 5$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 5$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.15. *10*



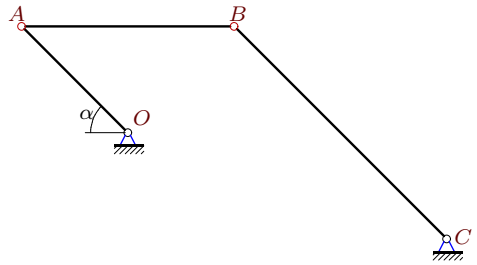
$\omega_{OAz} = -16$ рад/с, $OA||BC$,
$OA = 4\sqrt{2}$, $AB = 8$, $BC = 8\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.16. *10*



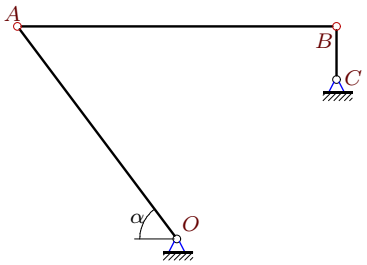
$\omega_{OAz} = 9$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 9$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.17. 10



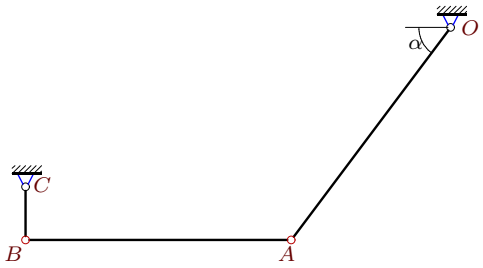
$\omega_{OAz} = 16$ рад/с, $OA \| BC$,
$OA = 4\sqrt{2}$, $AB = 8$, $BC = 8\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.18. 10



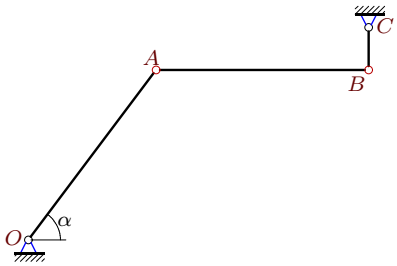
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.19. 10



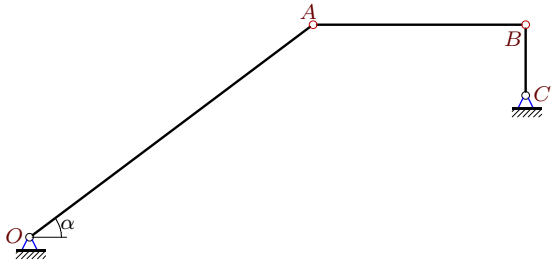
$\omega_{OAz} = -5$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 5$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.20. 10



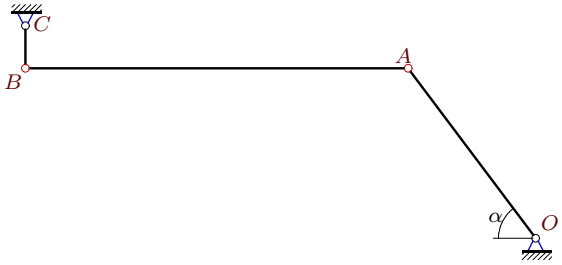
$\omega_{OAz} = 5$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 5$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.21. 10



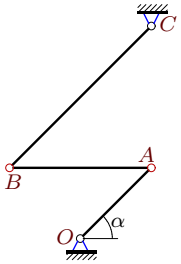
$\omega_{OAz} = 3$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 3$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.22. 10



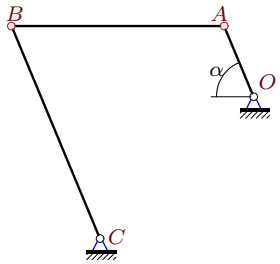
$\omega_{OAz} = -9$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 9$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.23. 10



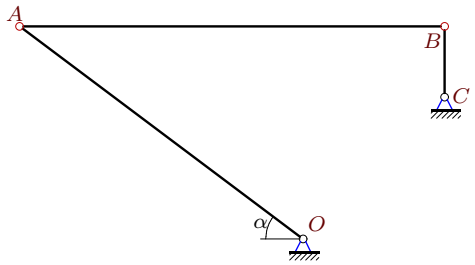
$\omega_{OAz} = 20$ рад/с, $OA \| BC$,
$OA = 5\sqrt{2}$, $AB = 10$, $BC = 10\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.24. 10



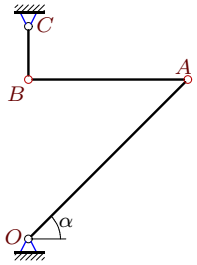
$\omega_{OAz} = -108$ рад/с, $OA \| BC$,
$OA = 13$, $AB = 36$, $BC = 39$, $\operatorname{tg}\alpha = 12/5$.

Задача 24.25. 10



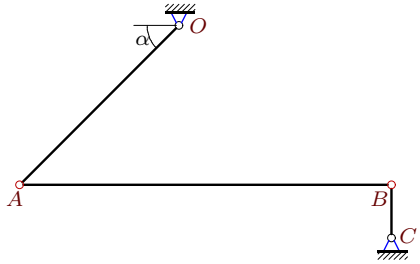
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.26. 10



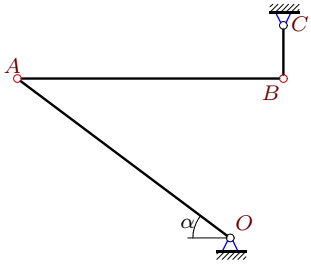
$\omega_{OAz} = -3$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 3$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.27. 10



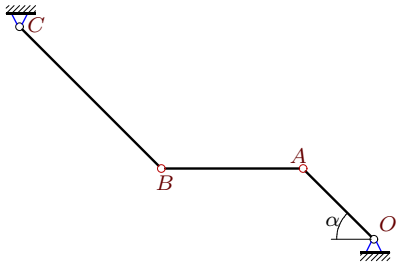
$\omega_{OAz} = 7$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 7$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.28. 10



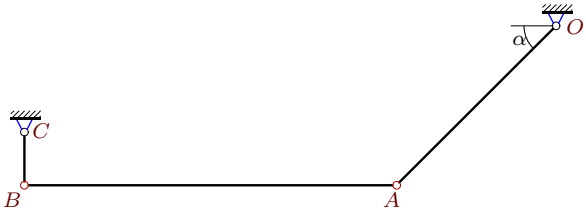
$\omega_{OAz} = 5$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 5$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.29. 10



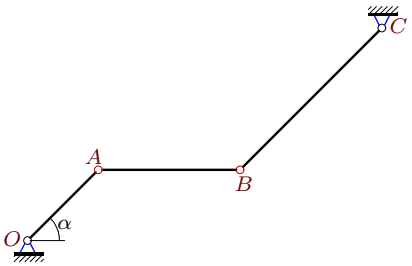
$\omega_{OAz} = 12$ рад/с, $OA||BC$,
$OA = 3\sqrt{2}$, $AB = 6$, $BC = 6\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.30. 10



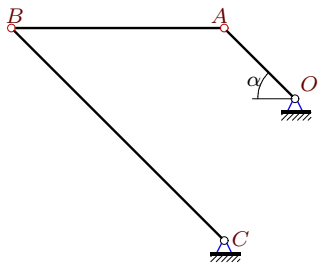
$\omega_{OAz} = -7$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 7$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.31. 10



$\omega_{OAz} = -16$ рад/с, $OA||BC$,
$OA = 4\sqrt{2}$, $AB = 8$, $BC = 8\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.32. 10



$\omega_{OAz} = -18$ рад/с, $OA||BC$,
$OA = 2\sqrt{2}$, $AB = 6$, $BC = 6\sqrt{2}$, $\alpha = \pi/4$.

24.10

Кинематический анализ механизма. Угловые ускорения

№	ω_{ABz}	ω_{BCz}	ε_{AB}	ε_{BC}
1	0	-7	196	98
2	0	21	1764	882
3	-2	-8	8	16
4	0	-10	676	240
5	0	8	100	48
6	3	24	72	54
7	2	-12	36	48
8	-2	-8	24	48
9	0	5	338	120
10	0	-8	384	192
11	3	-33	132	264
12	0	-21	1764	882
13	0	-2	16	8
14	3	15	30	30
15	0	-8	128	64
16	-4	-27	108	468
17	0	8	128	64
18	3	24	72	54
19	3	-20	60	120
20	-3	-20	100	120
21	-4	9	18	84
22	3	36	180	324
23	0	-10	600	300
24	0	-36	3042	1080
25	4	18	36	48
26	-3	9	36	0
27	3	-21	84	84
28	4	-15	60	20
29	0	-6	216	108
30	3	-21	42	210
31	0	8	384	192
32	0	-6	144	72