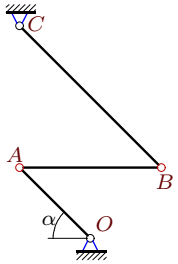
Кинематический анализ механизма. Угловые ускорения

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.

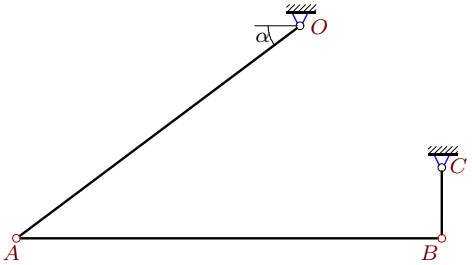
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.158.)

Задача 24.1. 8



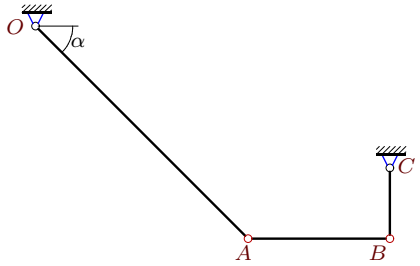
$\omega_{OAz} = -20$ рад/с, $OA \| BC$,
$OA = 5\sqrt{2}$, $AB = 10$, $BC = 10\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.2. 8



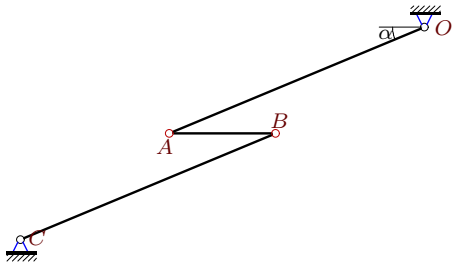
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.3. 8



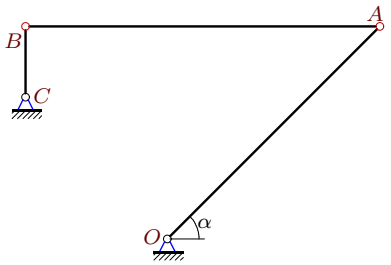
$\omega_{OAz} = 2$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 2$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.4. 8



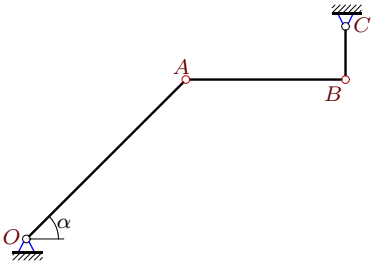
$\omega_{OAz} = -5$ рад/с, $OA \| BC$,
$OA = 13$, $AB = 5$, $BC = 13$, $\operatorname{tg}\alpha = 5/12$.

Задача 24.5. 8



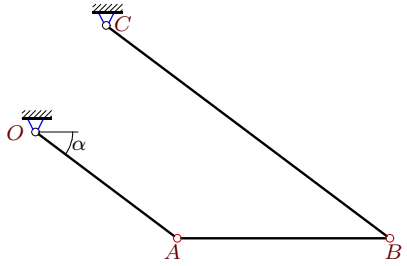
$\omega_{OAz} = -5$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 5$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.6. 8



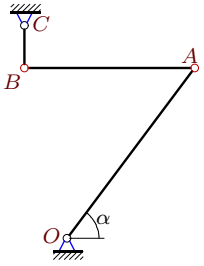
$\omega_{OAz} = 3$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 3$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.7. 8



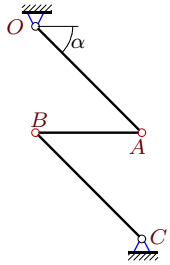
$\omega_{OAz} = 12$ рад/с, $OA \| BC$,
$OA = 5$, $AB = 6$, $BC = 10$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.8. 8



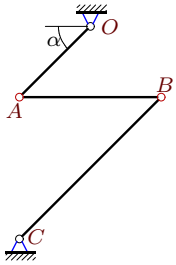
$\omega_{OAz} = -4$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 4$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.9. 8



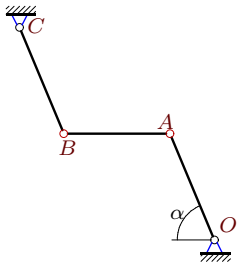
$\omega_{OAz} = 6$ рад/с, $OA||BC$,
$OA = 6\sqrt{2}$, $AB = 6$, $BC = 6\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.10. 8



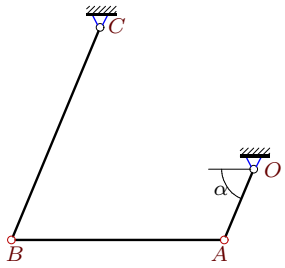
$\omega_{OAz} = -28$ рад/с, $OA||BC$,
$OA = 7\sqrt{2}$, $AB = 14$, $BC = 14\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.11. 8



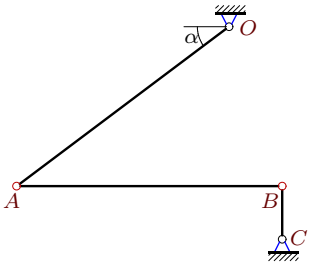
$\omega_{OAz} = 12$ рад/с, $OA||BC$,
$OA = 13$, $AB = 12$, $BC = 13$, $\operatorname{tg}\alpha = 12/5$.

Задача 24.12. 8



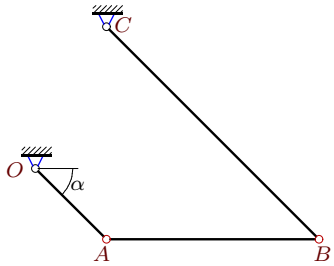
$\omega_{OAz} = -108$ рад/с, $OA||BC$,
$OA = 13$, $AB = 36$, $BC = 39$, $\operatorname{tg}\alpha = 12/5$.

Задача 24.13. 8



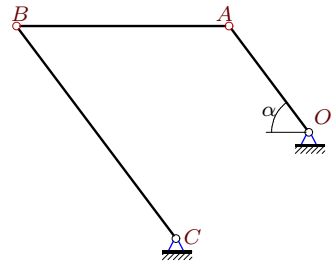
$\omega_{OAz} = 5$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 5$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.14. 8



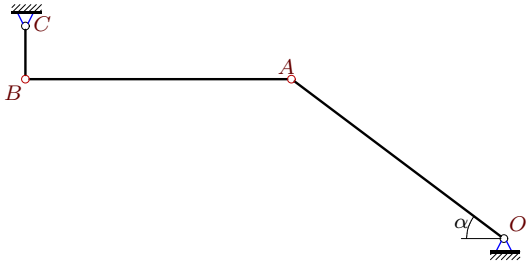
$\omega_{OAz} = 36$ рад/с, $OA||BC$,
$OA = 4\sqrt{2}$, $AB = 12$, $BC = 12\sqrt{2}$, $\alpha = \pi/4$.

Задача 24.15. 8



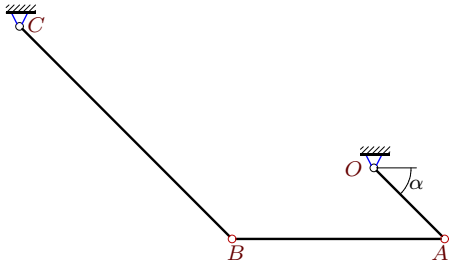
$\omega_{OAz} = -16$ рад/с, $OA||BC$,
$OA = 5$, $AB = 8$, $BC = 10$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.16. 8



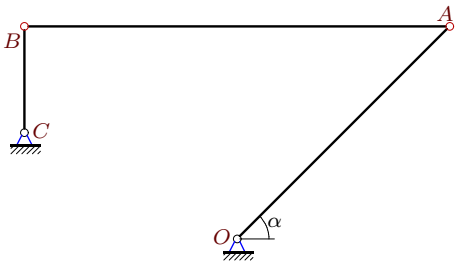
$\omega_{OAz} = -5$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 5$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.17. 8



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

Задача 24.18. 8

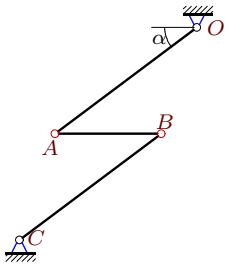


$\omega_{OAz} = -4$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 4$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.19. 8

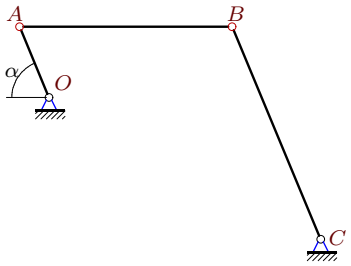
$\omega_{OAz} = -8$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 8$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.20. 8



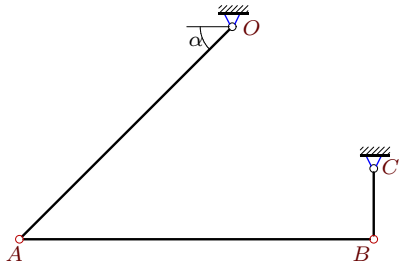
$\omega_{OAz} = -3$ рад/с, $OA \| BC$,
$OA = 5$, $AB = 3$, $BC = 5$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.21. 8



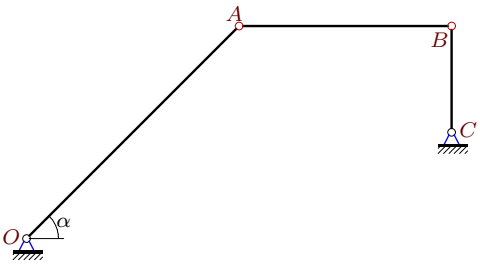
$\omega_{OAz} = 108$ рад/с, $OA \| BC$,
$OA = 13$, $AB = 36$, $BC = 39$, $\operatorname{tg}\alpha = 12/5$.

Задача 24.22. 8



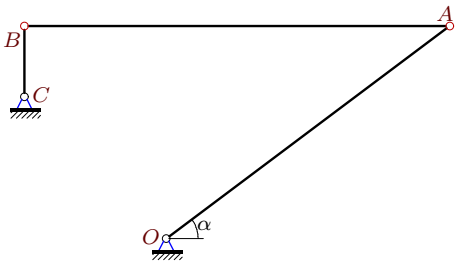
$\omega_{OAz} = 5$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 5$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.23. 8



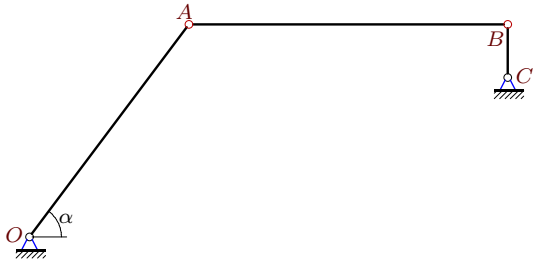
$\omega_{OAz} = 2$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 2$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.24. 8



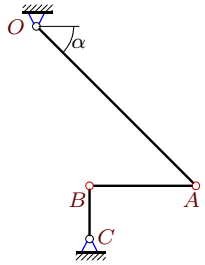
$\omega_{OAz} = -6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.25. 8



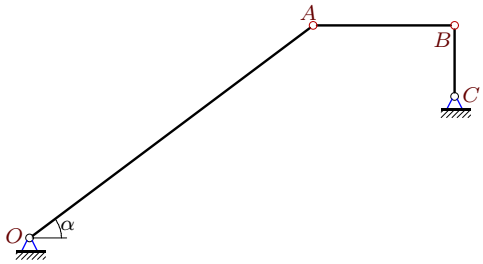
$\omega_{OAz} = 6$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 6$, $BC = 1$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.26. 8



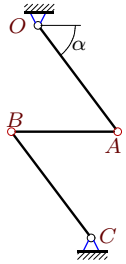
$\omega_{OAz} = -2$ рад/с, $AB \perp BC$,
$OA = 3\sqrt{2}$, $AB = 2$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.27. 8



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

Задача 24.28. 8

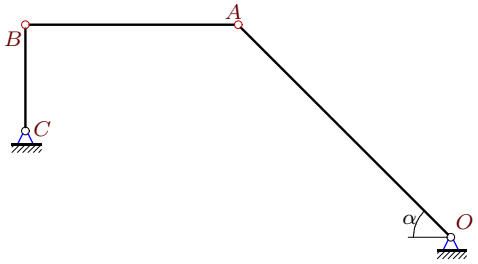


$\omega_{OAz} = 4$ рад/с, $OA||BC$,
$OA = 5$, $AB = 4$, $BC = 5$, $\operatorname{tg}\alpha = 4/3$.

Задача 24.29. 8

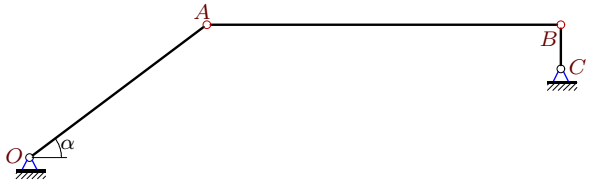
$\omega_{OAz} = -9$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 9$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.30. 8



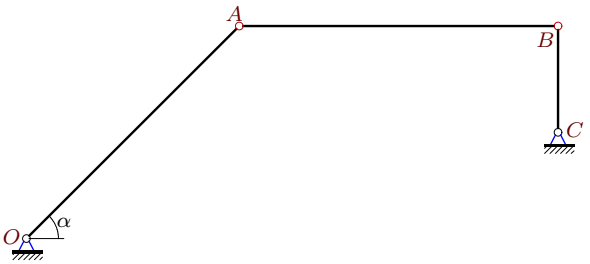
$\omega_{OAz} = -2$ рад/с, $AB \perp BC$,
$OA = 2\sqrt{2}$, $AB = 2$, $BC = 1$, $\alpha = \pi/4$.

Задача 24.31. 8



$\omega_{OAz} = 8$ рад/с, $AB \perp BC$,
$OA = 5$, $AB = 8$, $BC = 1$, $\operatorname{tg}\alpha = 3/4$.

Задача 24.32. 8



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

24.8

Кинематический анализ механизма. Угловые ускорения

№	ω_{ABz}	ω_{BCz}	ε_{AB}	ε_{BC}
1	0	10	600	300
2	4	18	36	48
3	-3	6	12	30
4	0	5	338	120
5	-3	-15	30	30
6	-3	-9	36	54
7	0	6	100	48
8	-3	16	80	12
9	0	-6	144	72
10	0	14	1176	588
11	0	-12	338	120
12	0	-36	3042	1080
13	4	-15	60	20
14	0	12	576	288
15	0	-8	100	48
16	4	15	60	180
17	0	-21	1764	882
18	-2	-8	8	16
19	2	16	48	160
20	0	3	50	24
21	0	36	3042	1080
22	3	15	30	30
23	-2	4	4	16
24	-4	-18	36	48
25	-3	24	72	162
26	-3	6	24	6
27	-4	6	12	48
28	0	-4	50	24
29	4	-27	54	468
30	2	-4	4	16
31	-4	24	48	384
32	-2	6	6	30