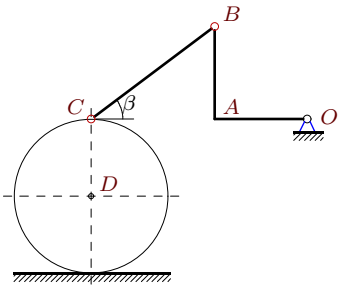
Скорости точек простого механизма (3 звена).

В указанном положении механизма задана угловая скорость одного из его звеньев. Звенья, направление которых не указано, принимать вертикальными или горизонтальными. Радиус цилиндра R. Размеры даны в метрах.

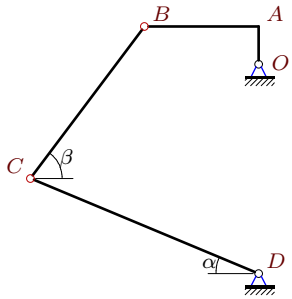
Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.158.)

Задача К17.1.



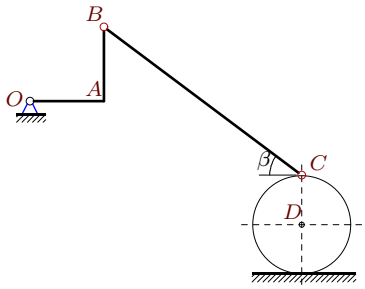
$\omega_{OA_z} = 20\frac{1}{c}$, $OA = AB = 3$, $OA \perp AB$,
$BC = 2R = 5$, $\operatorname{tg}\beta = 3/4$.

Задача К17.2.



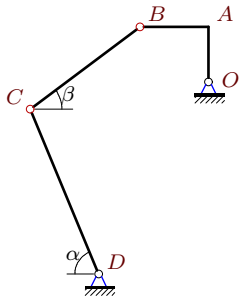
$\omega_{BC_z} = -1\frac{1}{c}$, $OA = 2$, $AB = 6$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 5/12$

Задача К17.3.



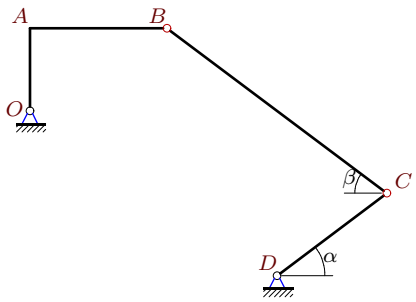
$\omega_{DC_z} = 21\frac{1}{c}$, $OA = AB = 3$, $OA \perp AB$,
$BC = 10$, $R = 2$, $\operatorname{tg}\beta = 3/4$.

Задача К17.4.



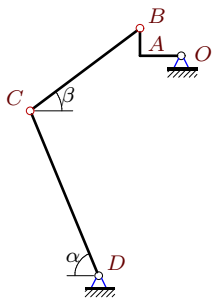
$\omega_{OA_z} = 63\frac{1}{c}$, $OA = 4$, $AB = 5$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 12/5$

Задача К17.5.



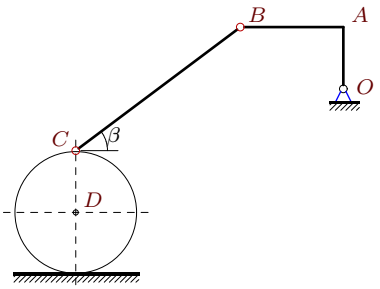
$\omega_{DC_z} = 18\frac{1}{c}$, $OA = 3$, $AB = 5$, $OA \perp AB$,
$BC = 10$, $DC = 5$, $\operatorname{tg}\alpha = \operatorname{tg}\beta = 3/4$

Задача К17.6.



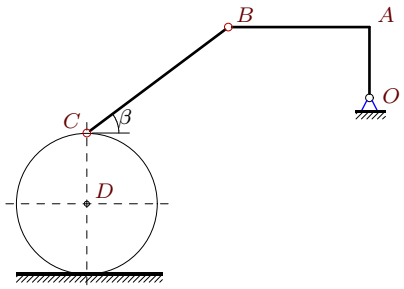
$\omega_{OA_z} = 63\frac{1}{c}$, $OA = 3$, $AB = 2$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 12/5$

Задача К17.7.



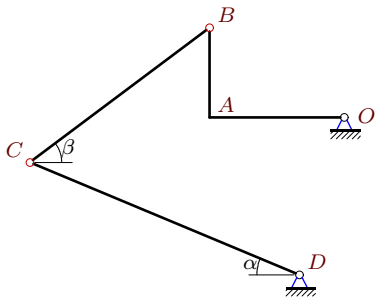
$\omega_{BC_z} = -5\frac{1}{c}$, $OA = 3$, $AB = 5$, $OA \perp AB$,
$BC = 10$, $R = 3$, $\operatorname{tg}\beta = 3/4$.

Задача К17.8.



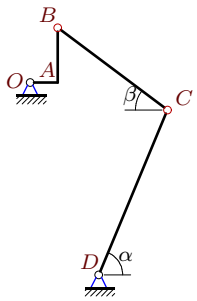
$\omega_{BC_z} = -4\frac{1}{c}$, $OA = 2$, $AB = 4$, $OA \perp AB$,
$BC = 5$, $R = 2$, $\operatorname{tg}\beta = 3/4$.

Задача К17.9.



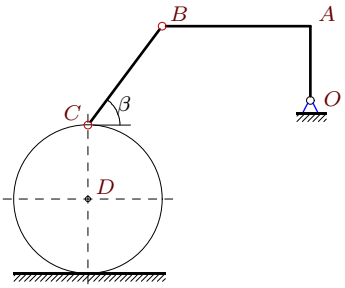
$\omega_{BC_z} = 9\frac{1}{c}$, $OA = 6$, $AB = 4$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 5/12$

Задача К17.10.



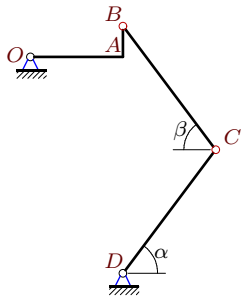
$\omega_{OA_z} = 63\frac{1}{c}$, $OA = 2$, $AB = 4$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 12/5$

Задача К17.11.



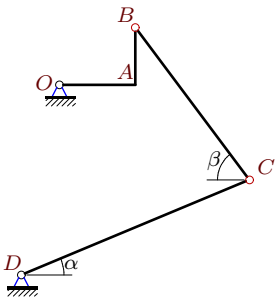
$\omega_{BC_z} = -12\frac{1}{c}$, $OA = 3$, $AB = 6$, $OA \perp AB$,
$BC = 5$, $R = 3$, $\operatorname{tg}\beta = 4/3$.

Задача К17.12.



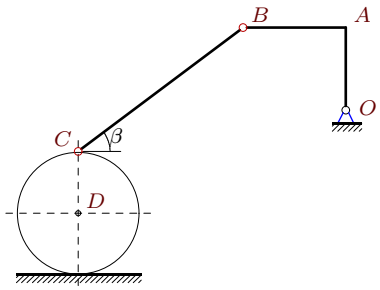
$\omega_{DC_z} = 5\frac{1}{c}$, $OA = 6$, $AB = 2$, $OA \perp AB$,
$BC = DC = 10$, $\operatorname{tg}\alpha = \operatorname{tg}\beta = 4/3$

Задача К17.13.



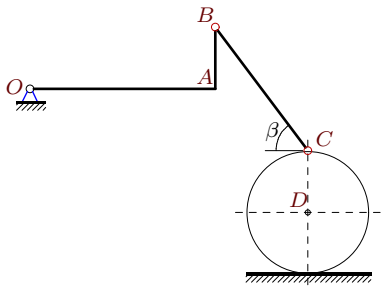
$\omega_{BC_z} = 8\frac{1}{c}$, $OA = 4$, $AB = 3$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 5/12$

Задача К17.14.



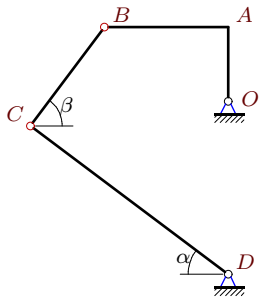
$\omega_{DC_z} = 31\frac{1}{c}$, $OA = 4$, $AB = 5$, $OA \perp AB$,
$BC = 10$, $R = 3$, $\operatorname{tg}\beta = 3/4$.

Задача К17.15. 1



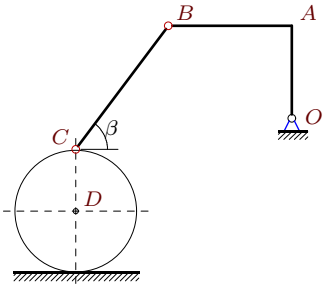
$\omega_{DC_z} = 5\frac{1}{c}$, $OA = 6$, $AB = 2$, $OA \perp AB$,
$BC = 5$, $R = 2$, $\operatorname{tg}\beta = 4/3$.

Задача К17.16. 1



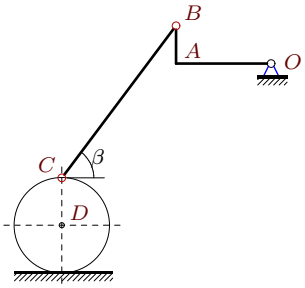
$\omega_{DC_z} = 29\frac{1}{c}$, $OA = 3$, $AB = 5$, $OA \perp AB$,
$BC = 5$, $DC = 10$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 3/4$

Задача К17.17. 1



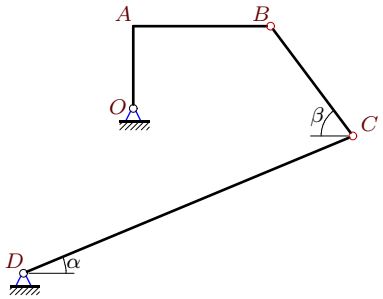
$\omega_{OA_z} = 12\frac{1}{c}$, $OA = 3$, $AB = 4$, $OA \perp AB$,
$BC = 5$, $R = 2$, $\operatorname{tg}\beta = 4/3$.

Задача К17.18. 1



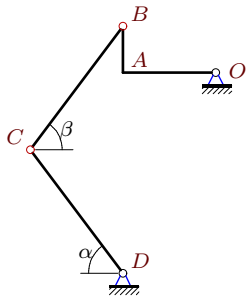
$\omega_{DC_z} = 52\frac{1}{c}$, $OA = 5$, $AB = 2$, $OA \perp AB$,
$BC = 10$, $R = 2.5$, $\operatorname{tg}\beta = 4/3$.

Задача К17.19. 1



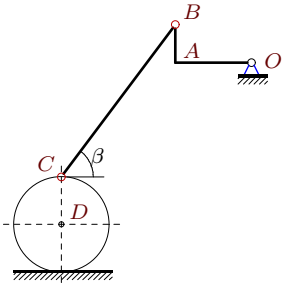
$\omega_{BC_z} = 11\frac{1}{c}$, $OA = 3$, $AB = 5$, $OA \perp AB$,
$BC = 5$, $DC = 13$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 5/12$

Задача К17.20. 1



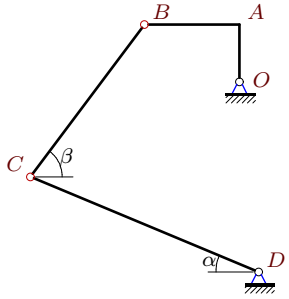
$\omega_{DC_z} = 11\frac{1}{c}$, $OA = 6$, $AB = 3$, $OA \perp AB$,
$BC = DC = 10$, $\operatorname{tg}\alpha = \operatorname{tg}\beta = 4/3$

Задача К17.21. 1



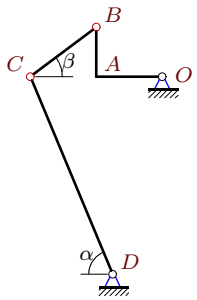
$\omega_{BC_z} = -10\frac{1}{c}$, $OA = 4$, $AB = 2$, $OA \perp AB$,
$BC = 10$, $R = 2.5$, $\operatorname{tg}\beta = 4/3$.

Задача К17.22. 1



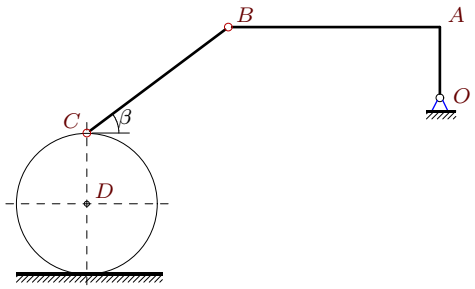
$\omega_{BC_z} = 11\frac{1}{c}$, $OA = 3$, $AB = 5$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 5/12$

Задача К17.23.



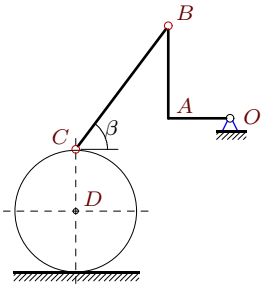
$\omega_{OA_z} = 21\frac{1}{c}$, $OA = 4$, $AB = 3$, $OA \perp AB$,
$BC = 5$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 12/5$

Задача К17.24.



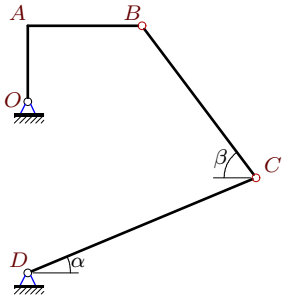
$\omega_{DC_z} = 13\frac{1}{c}$, $OA = 2$, $AB = 6$, $OA \perp AB$,
$BC = 5$, $R = 2$, $\operatorname{tg}\beta = 3/4$.

Задача К17.25.



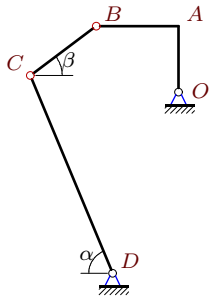
$\omega_{DC_z} = 17\frac{1}{c}$, $OA = 2$, $AB = 3$, $OA \perp AB$,
$BC = 5$, $R = 2$, $\operatorname{tg}\beta = 4/3$.

Задача К17.26.



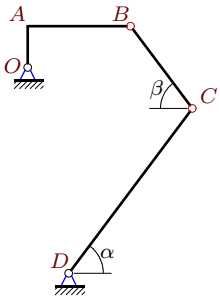
$\omega_{BC_z} = 1\frac{1}{c}$, $OA = 4$, $AB = 6$, $OA \perp AB$,
$BC = 10$, $DC = 13$, $\operatorname{tg}\beta = 4/3$, $\operatorname{tg}\alpha = 5/12$

Задача К17.27.



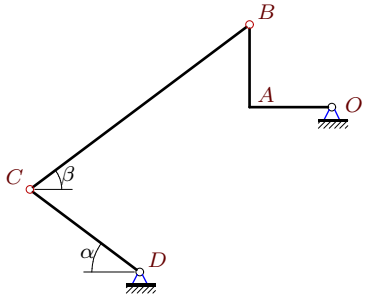
$\omega_{OA_z} = 63\frac{1}{c}$, $OA = 4$, $AB = 5$, $OA \perp AB$,
$BC = 5$, $DC = 13$, $\operatorname{tg}\beta = 3/4$, $\operatorname{tg}\alpha = 12/5$

Задача К17.28.



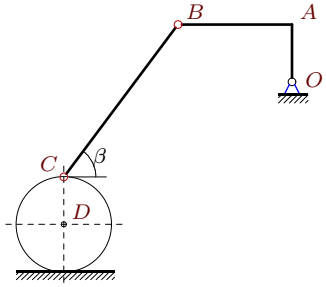
$\omega_{DC_z} = 13\frac{1}{c}$, $OA = 2$, $AB = 5$, $OA \perp AB$,
$BC = 5$, $DC = 10$, $\operatorname{tg}\alpha = \operatorname{tg}\beta = 4/3$

Задача К17.29.



$\omega_{DC_z} = 14\frac{1}{c}$, $OA = AB = 3$, $OA \perp AB$,
$BC = 10$, $DC = 5$, $\operatorname{tg}\alpha = \operatorname{tg}\beta = 3/4$

Задача К17.30.



$\omega_{BC_z} = -5\frac{1}{c}$, $OA = 3$, $AB = 6$, $OA \perp AB$,
$BC = 10$, $R = 2.5$, $\operatorname{tg}\beta = 4/3$.

К17 **Ответы.**
Скорости точек простого механизма (3 звена). 22.03.2012

№	ω_{OAz}	ω_{BCz}	ω_{CDz}	v_A	v_B	v_C
1	–	−15	21	60	84.85	105
2	21	–	10	42	132.82	130
3	16	−6	–	48	67.88	84
4	–	−20	31	252	403.4	403
5	16	−1	–	48	93.3	90
6	–	−13	17	189	227.15	221
7	8	–	9	24	46.65	54
8	4	–	5	8	17.89	20
9	56	–	34	336	403.82	442
10	–	−2	22	126	281.74	286
11	6	–	11	18	40.25	66
12	8	−3	–	48	50.6	50
13	63	–	25	252	315	325
14	24	−15	–	96	153.67	186
15	2	−4	–	12	12.65	20
16	50	−6	–	150	291.55	290
17	–	−16	25	36	60	100
18	30	−25	–	150	161.55	260
19	63	–	29	189	367.35	377
20	16	−5	–	96	107.33	110
21	15	–	22	60	67.08	110
22	126	–	58	378	734.7	754
23	–	−11	8	84	105	104
24	8	−12	–	16	50.6	52
25	12	−8	–	24	43.27	68
26	7	–	4	28	50.48	52
27	–	−40	31	252	403.4	403
28	24	−14	–	48	129.24	130
29	16	1	–	48	67.88	70
30	5	–	11	15	33.54	55

К17 файл o17k1A