

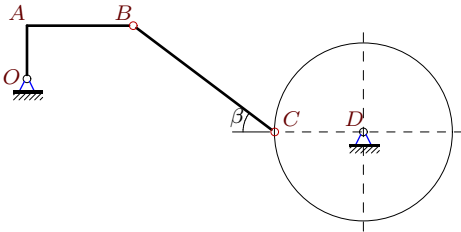
## Скорости точек простого механизма (3 звена).

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

### Задача K17.1.

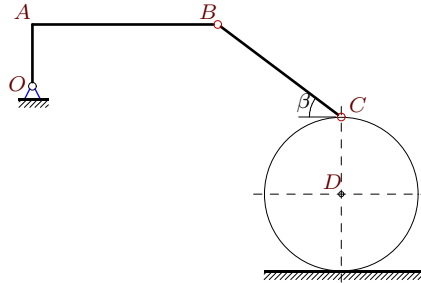
3



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

### Задача K17.2.

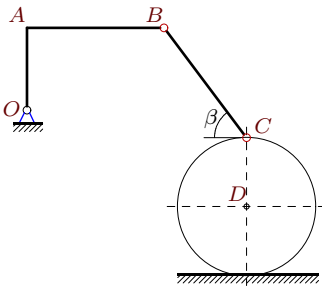
3



$$\omega_{OAz} = 10\frac{1}{c}, \quad OA = 2, \quad AB = 6, \quad OA \perp AB, \\ BC = 2R = 5, \quad \operatorname{tg} \beta = 3/4.$$

### Задача K17.3.

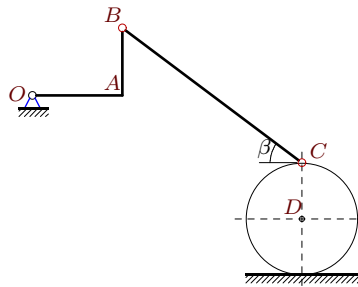
3



$$\omega_{OAz} = 15\frac{1}{c}, \quad OA = 3, \quad AB = 5, \quad OA \perp AB, \\ BC = 2R = 5, \quad \operatorname{tg} \beta = 4/3.$$

### Задача K17.4.

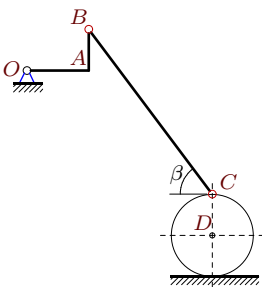
3



$$\omega_{DCz} = 12\frac{1}{c}, \quad OA = 4, \quad AB = 3, \quad OA \perp AB, \\ BC = 10, \quad R = 2.5, \quad \operatorname{tg} \beta = 3/4.$$

### Задача K17.5.

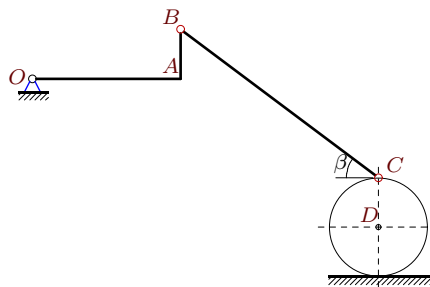
3



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

### Задача K17.6.

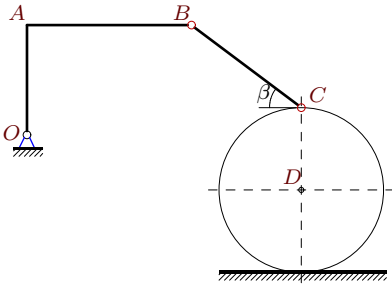
3



$$\omega_{OAz} = 8\frac{1}{c}, \quad OA = 6, \quad AB = 2, \quad OA \perp AB, \\ BC = 10, \quad R = 2, \quad \operatorname{tg} \beta = 3/4.$$

**Задача K17.7.**

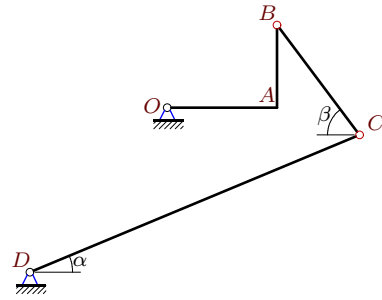
3



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

**Задача K17.8.**

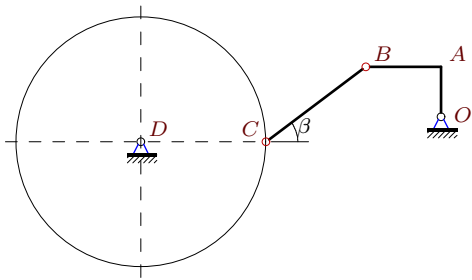
3



$\omega_{BC_z} = 16\frac{1}{c}$ ,  $OA = 4$ ,  $AB = 3$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $DC = 13$ ,  $\text{tg } \beta = 4/3$ ,  $\text{tg } \alpha = 5/12$

**Задача K17.9.**

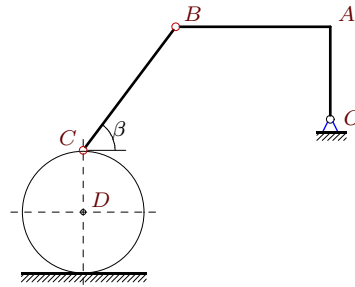
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$\omega_{BC_z} = -10\frac{1}{c}$ ,  $OA = 2$ ,  $AB = 3$ ,  $OA \perp AB$ ,  
 $BC = R = 5$ ,  $\text{tg } \beta = 3/4$ .

**Задача K17.10.**

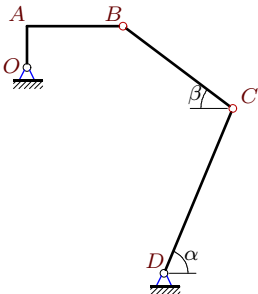
3



$\omega_{DC_z} = 29\frac{1}{c}$ ,  $OA = 3$ ,  $AB = 5$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $R = 2$ ,  $\text{tg } \beta = 4/3$ .

**Задача K17.11.**

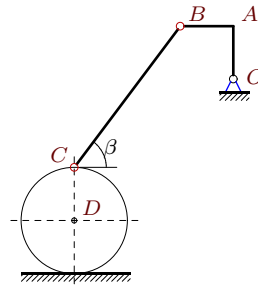
3



$\omega_{OA_z} = 42\frac{1}{c}$ ,  $OA = 3$ ,  $AB = 7$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $DC = 13$ ,  $\text{tg } \beta = 3/4$ ,  $\text{tg } \alpha = 12/5$

**Задача K17.12.**

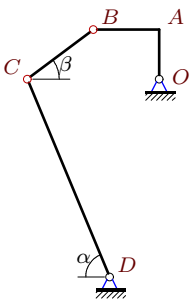
3



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

**Задача K17.13.**

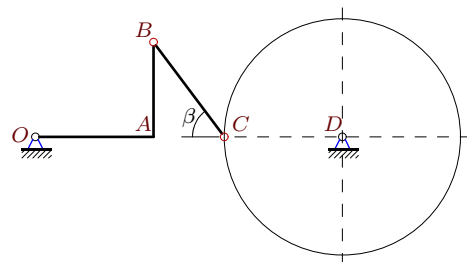
3



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

**Задача K17.14.**

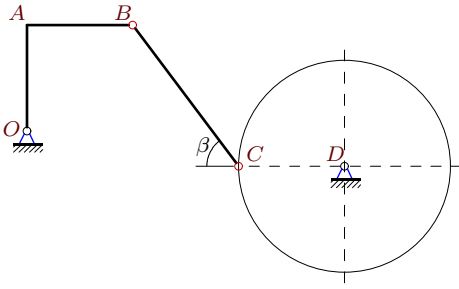
3



$\omega_{DC_z} = 8\frac{1}{c}$ ,  $OA = 5$ ,  $AB = 4$ ,  $OA \perp AB$ ,  
 $BC = R = 5$ ,  $\text{tg } \beta = 4/3$ .

**Задача K17.15.**

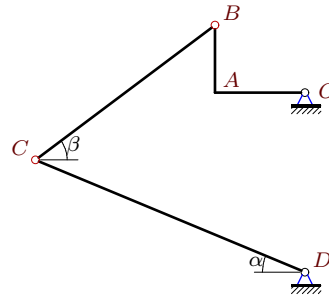
3



$\omega_{DCz} = 7\frac{1}{c}$ ,  $OA = AB = 3$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $R = 3$ ,  $\operatorname{tg} \beta = 4/3$ .

**Задача K17.16.**

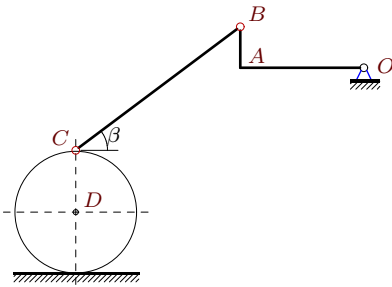
3



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

**Задача K17.17.**

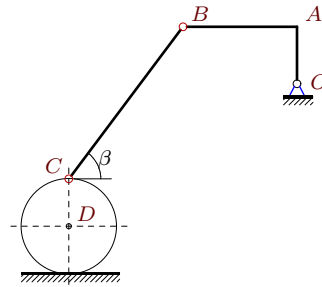
3



$\omega_{OAz} = 12\frac{1}{c}$ ,  $OA = 6$ ,  $AB = 2$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 3$ ,  $\operatorname{tg} \beta = 3/4$ .

**Задача K17.18.**

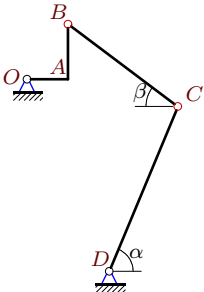
3



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

**Задача K17.19.**

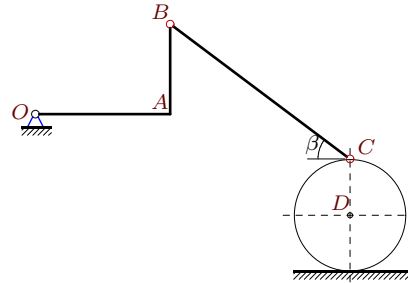
3



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

**Задача K17.20.**

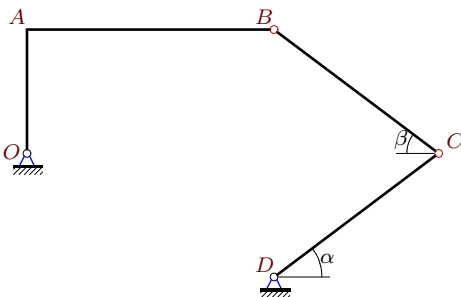
3



$\omega_{DCz} = 34\frac{1}{c}$ ,  $OA = 6$ ,  $AB = 4$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 2.5$ ,  $\operatorname{tg} \beta = 3/4$ .

**Задача K17.21.**

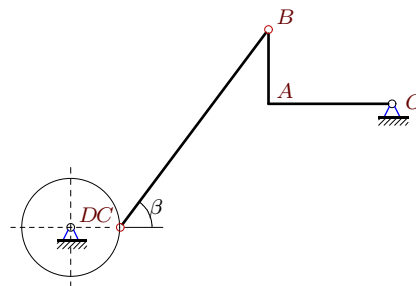
3



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

**Задача K17.22.**

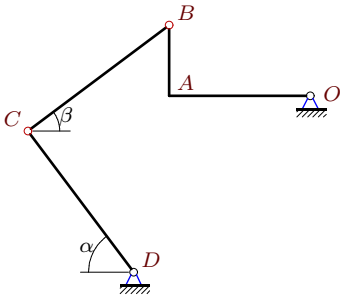
3



$\omega_{DCz} = 29\frac{1}{c}$ ,  $OA = 5$ ,  $AB = 3$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 2$ ,  $\operatorname{tg} \beta = 4/3$ .

**Задача K17.23.**

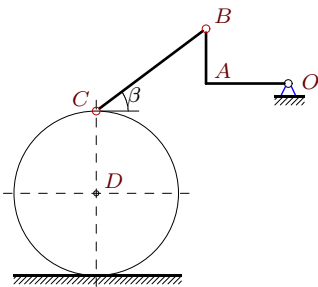
3



$\omega_{DCz} = 4\frac{1}{c}$ ,  $OA = 4$ ,  $AB = 2$ ,  $OA \perp AB$ ,  
 $BC = DC = 5$ ,  $\text{tg } \beta = 3/4$ ,  $\text{tg } \alpha = 4/3$

**Задача K17.25.**

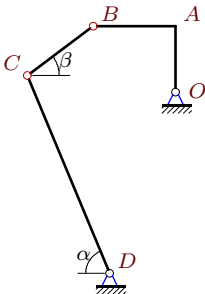
3



$\omega_{OA_z} = 24\frac{1}{c}$ ,  $OA = 3$ ,  $AB = 2$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $R = 3$ ,  $\text{tg } \beta = 3/4$ .

**Задача K17.27.**

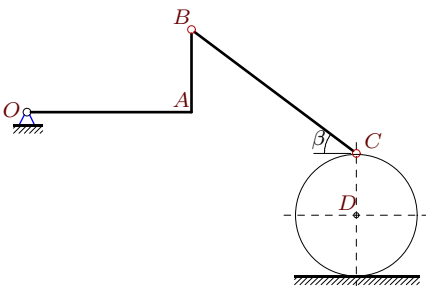
3



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

**Задача K17.29.**

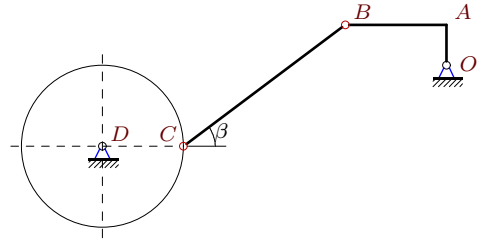
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$\omega_{DCz} = 5\frac{1}{c}$ ,  $OA = 4$ ,  $AB = 2$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $R = 1.5$ ,  $\text{tg } \beta = 3/4$ .

**Задача K17.24.**

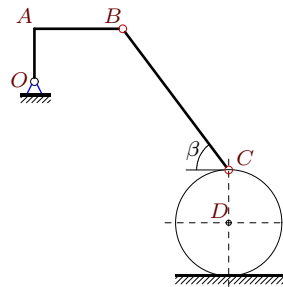
3



$\omega_{OA_z} = -12\frac{1}{c}$ ,  $OA = 2$ ,  $AB = 5$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 4$ ,  $\text{tg } \beta = 3/4$ .

**Задача K17.26.**

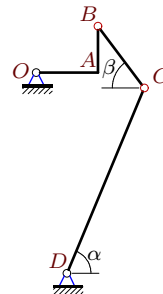
3



$\omega_{BCz} = -15\frac{1}{c}$ ,  $OA = 3$ ,  $AB = 5$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 3$ ,  $\text{tg } \beta = 4/3$ .

**Задача K17.28.**

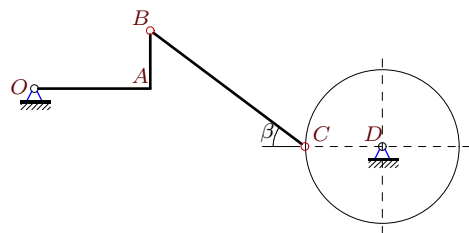
3



$\omega_{OA_z} = 56\frac{1}{c}$ ,  $OA = 4$ ,  $AB = 3$ ,  $OA \perp AB$ ,  
 $BC = 5$ ,  $DC = 13$ ,  $\text{tg } \beta = 4/3$ ,  $\text{tg } \alpha = 12/5$

**Задача K17.30.**

3



$\omega_{OA_z} = -2\frac{1}{c}$ ,  $OA = 6$ ,  $AB = 3$ ,  $OA \perp AB$ ,  
 $BC = 10$ ,  $R = 4$ ,  $\text{tg } \beta = 3/4$ .

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

22.03.2012

№	$\omega_{OAz}$	$\omega_{BCz}$	$\omega_{CDz}$	$v_A$	$v_B$	$v_C$
1	-2	-	4	6	13.42	20
2	-	-15	13	20	63.25	65
3	-	-25	29	45	87.46	145
4	10	-5	-	40	50	60
5	2	-1	-	6	7.21	12
6	-	-6	13	48	50.6	52
7	-	-18	17	48	86.53	102
8	63	-	25	252	315	325
9	-15	-	17	30	54.08	85
10	12	-20	-	36	69.97	116
11	-	-23	22	126	319.86	286
12	6	-	7	18	25.46	42
13	-	-11	8	63	105	104
14	-5	-5	-	25	32.02	40
15	-4	-3	-	12	16.97	21
16	7	-	3	28	35	39
17	-	-9	13	72	75.9	78
18	5	-	11	15	33.54	55
19	-	-8	25	189	315	325
20	20	-15	-	120	144.22	170
21	4	-1	-	12	26.83	25
22	-8	-3	-	40	46.65	58
23	5	-2	-	20	22.36	20
24	-	-4	23	24	64.62	92
25	-	-18	17	72	86.53	102
26	18	-	29	54	104.96	174
27	-	-40	31	252	403.4	403
28	-	-33	25	224	280	325
29	3	-3	-	12	13.42	15
30	-	-1	5	12	13.42	20

К17 файл о17к3А