

# Кинематический анализ плоского механизма

В указанном положении механизма задана угловая скорость одного из звеньев. Длины звеньев даны в сантиметрах. Стержни, направление которых не указано, считать горизонтальными или вертикальными. Диск катится по горизонтальной поверхности без проскальзывания. Найти угловые скорости всех звеньев механизма.

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

**Задача 26.1.** 46

$\omega_{OA_z} = 1\frac{1}{c}$ ,  $R = 4$ ,  $OA = 8\sqrt{2}$ ,  
 $AB = 4$ ,  $BN = 4$ ,  $BC = 4\sqrt{2}$ ,  $CD = 4$ ,  $\alpha = 45^\circ$

**Задача 26.2.** 46

$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 6$ ,  $OA = 4$ ,  
 $AD = 6\sqrt{2}$ ,  $BC = 8$ ,  $\alpha = 45^\circ$ .

**Задача 26.3.** 46

$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 6$ ,  $OA = 6\sqrt{2}$ ,  
 $AB = 7$ ,  $AD = 6$ ,  $\alpha = 45^\circ$ .

**Задача 26.4.** 46

$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 6$ ,  $OA = 7$ ,  
 $CD = 12\sqrt{2}$ ,  $AN = 7$ ,  $AB = 19$ ,  $\alpha = 45^\circ$ .

**Задача 26.5.** 46

$\omega_{OA_z} = 99\frac{1}{c}$ ,  $R = 6$ ,  $OA = 4\sqrt{2}$ ,  
 $CD = 12\sqrt{2}$ ,  $AN = 11$ ,  $AB = 23$ ,  $\alpha = 45^\circ$ .

**Задача 26.6.** 46

$\omega_{OA_z} = 6\frac{1}{c}$ ,  $R = 4$ ,  $OA = 2$ ,  
 $AK = 7$ ,  $BK = 2$ ,  $KN = 4$ ,  $CD = 6$ .

**Задача 26.7.** 46

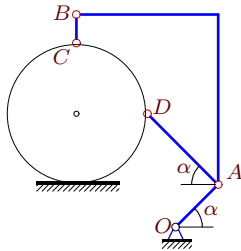
$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 3$ ,  $OA = 2\sqrt{2}$ ,  
 $AK = 6$ ,  $BK = 4$ ,  $KN = 3$ ,  $CD = 7$ ,  $\alpha = 45^\circ$ .

**Задача 26.8.** 46

$\omega_{OA_z} = 4\frac{1}{c}$ ,  $R = 7$ ,  $OA = 7$ ,  
 $AB = 8\sqrt{2}$ ,  $AD = 14$ ,  $\alpha = 45^\circ$ .

**Задача 26.9.**

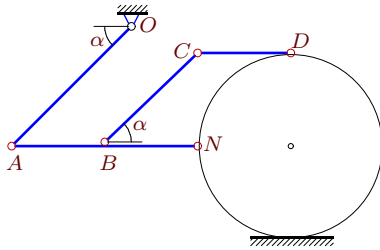
46



$\omega_{OA_z} = 10\frac{1}{c}$ ,  $R = 5$ ,  $OA = 3\sqrt{2}$ ,  
 $AD = 5\sqrt{2}$ ,  $BC = 2$ ,  $\alpha = 45^\circ$ .

**Задача 26.11.**

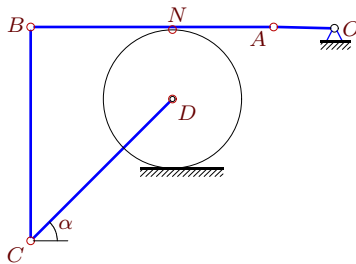
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$\omega_{OA_z} = 7\frac{1}{c}$ ,  $R = 7$ ,  $OA = 9\sqrt{2}$ ,  
 $AB = 7$ ,  $BN = 7$ ,  $BC = 7\sqrt{2}$ ,  $CD = 7$ ,  $\alpha = 45^\circ$

**Задача 26.13.**

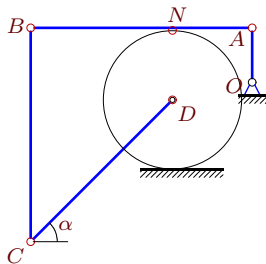
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$\omega_{OA_z} = 5\frac{1}{c}$ ,  $R = 7$ ,  $OA = 6$ ,  
 $CD = 14\sqrt{2}$ ,  $AN = 10$ ,  $AB = 24$ ,  $\alpha = 45^\circ$ .

**Задача 26.15.**

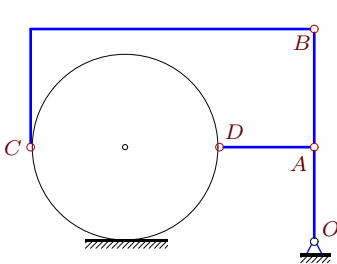
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$\omega_{OA_z} = 8\frac{1}{c}$ ,  $R = 8$ ,  $OA = 6$ ,  
 $CD = 16\sqrt{2}$ ,  $AN = 9$ ,  $AB = 25$ ,  $\alpha = 45^\circ$ .

**Задача 26.17.**

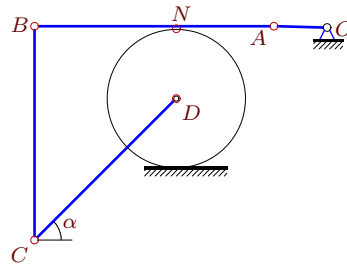
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$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 4$ ,  $OA = 4$ ,  
 $AB = 5$ ,  $AD = 4$ .

**Задача 26.10.**

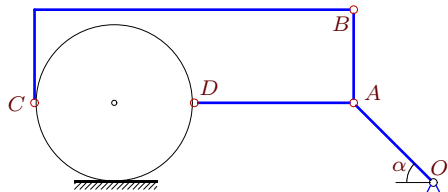
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$\omega_{OA_z} = 11\frac{1}{c}$ ,  $R = 8$ ,  $OA = 6$ ,  
 $CD = 16\sqrt{2}$ ,  $AN = 11$ ,  $AB = 27$ ,  $\alpha = 45^\circ$ .

**Задача 26.12.**

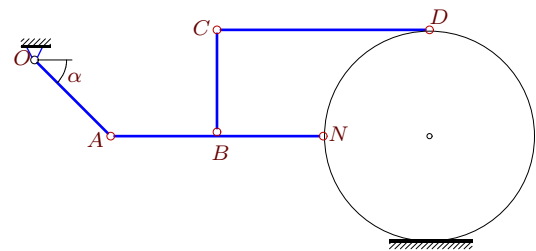
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$\omega_{OA_z} = 1\frac{1}{c}$ ,  $R = 6$ ,  $OA = 6\sqrt{2}$ ,  
 $AB = 7$ ,  $AD = 12$ ,  $\alpha = 45^\circ$ .

**Задача 26.14.**

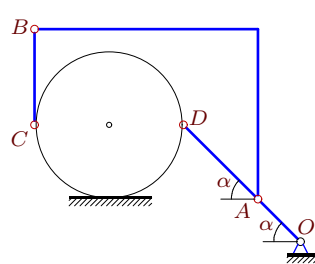
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$\omega_{OA_z} = 14\frac{1}{c}$ ,  $R = 7$ ,  $OA = 5\sqrt{2}$ ,  
 $AB = 7$ ,  $BN = BC = 7$ ,  $CD = 14$ ,  $\alpha = 45^\circ$

**Задача 26.16.**

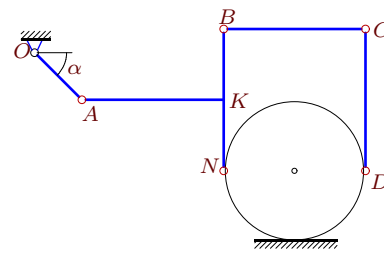
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$\omega_{OA_z} = 189\frac{1}{c}$ ,  $R = 7$ ,  $OA = 4\sqrt{2}$ ,  
 $AD = 7\sqrt{2}$ ,  $BC = 9$ ,  $\alpha = 45^\circ$ .

**Задача 26.18.**

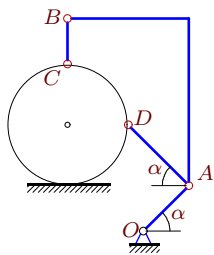
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$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 3$ ,  $OA = 2\sqrt{2}$ ,  
 $AK = 6$ ,  $BK = 3$ ,  $KN = 3$ ,  $CD = 6$ ,  $\alpha = 45^\circ$ .

**Задача 26.19.**

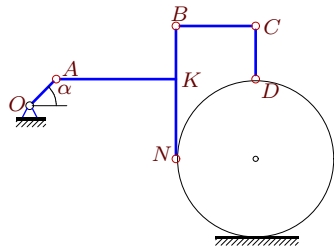
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$\omega_{OA_z} = 8\frac{1}{c}$ ,  $R = 4$ ,  $OA = 3\sqrt{2}$ ,  
 $AD = 4\sqrt{2}$ ,  $BC = 3$ ,  $\alpha = 45^\circ$ .

**Задача 26.21.**

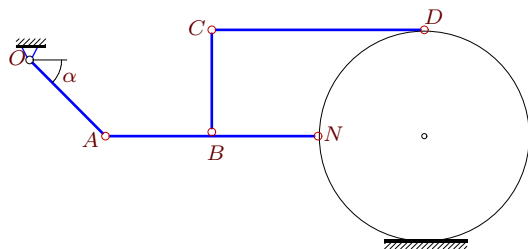
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$\omega_{OA_z} = 6\frac{1}{c}$ ,  $R = 6$ ,  $OA = 2\sqrt{2}$ ,  
 $AK = 9$ ,  $BK = 4$ ,  $KN = 6$ ,  $CD = 4$ ,  $\alpha = 45^\circ$ .

**Задача 26.23.**

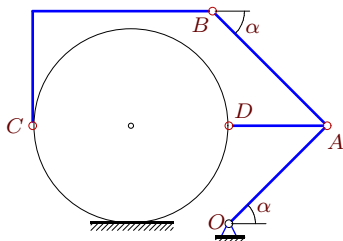
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$\omega_{OA_z} = 14\frac{1}{c}$ ,  $R = 7$ ,  $OA = 5\sqrt{2}$ ,  
 $AB = 7$ ,  $BN = BC = 7$ ,  $CD = 14$ ,  $\alpha = 45^\circ$

**Задача 26.25.**

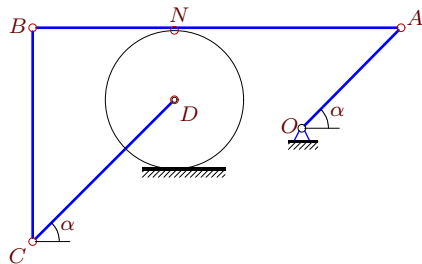
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$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 6$ ,  $OA = 6\sqrt{2}$ ,  
 $AB = 7\sqrt{2}$ ,  $AD = 6$ ,  $\alpha = 45^\circ$ .

**Задача 26.27.**

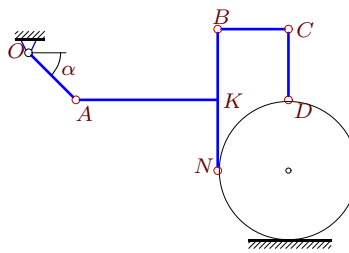
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$\omega_{OA_z} = 80\frac{1}{c}$ ,  $R = 5$ ,  $OA = 7\sqrt{2}$ ,  
 $CD = 10\sqrt{2}$ ,  $AN = 16$ ,  $AB = 26$ ,  $\alpha = 45^\circ$ .

**Задача 26.20.**

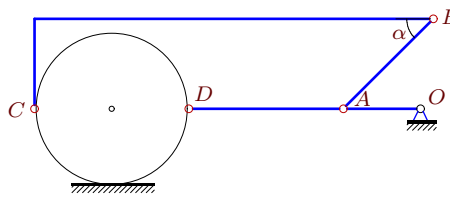
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$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 3$ ,  $OA = 2\sqrt{2}$ ,  
 $AK = 6$ ,  $BK = 3$ ,  $KN = 3$ ,  $CD = 3$ ,  $\alpha = 45^\circ$ .

**Задача 26.22.**

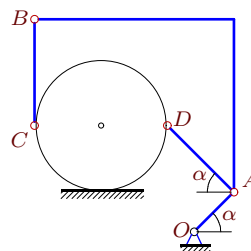
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$\omega_{OA_z} = 4\frac{1}{c}$ ,  $R = 6$ ,  $OA = 6$ ,  
 $AB = 7\sqrt{2}$ ,  $AD = 12$ ,  $\alpha = 45^\circ$ .

**Задача 26.24.**

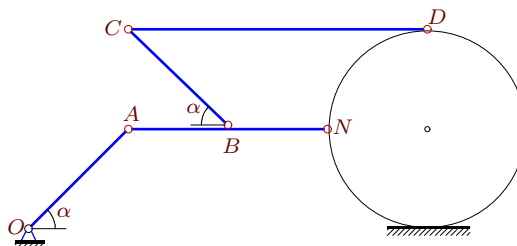
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$\omega_{OA_z} = 20\frac{1}{c}$ ,  $R = 5$ ,  $OA = 3\sqrt{2}$ ,  
 $AD = 5\sqrt{2}$ ,  $BC = 8$ ,  $\alpha = 45^\circ$ .

**Задача 26.26.**

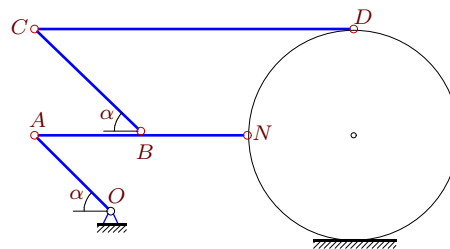
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$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 4$ ,  $OA = 4\sqrt{2}$ ,  
 $AB = 4$ ,  $BN = 4$ ,  $BC = 4\sqrt{2}$ ,  $CD = 12$ ,  $\alpha = 45^\circ$

**Задача 26.28.**

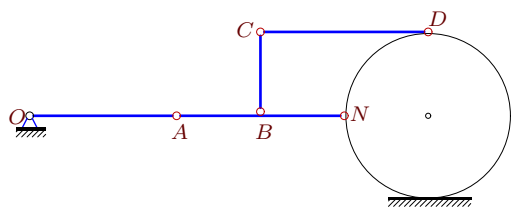
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$\omega_{OA_z} = 21\frac{1}{c}$ ,  $R = 7$ ,  $OA = 5\sqrt{2}$ ,  
 $AB = 7$ ,  $BN = 7$ ,  $BC = 7\sqrt{2}$ ,  $CD = 21$ ,  $\alpha = 45^\circ$

**Задача 26.29.**

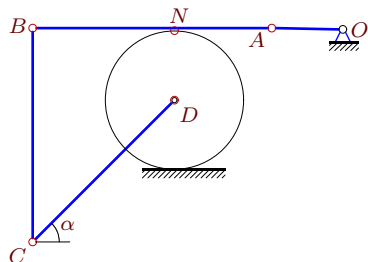
46



$\omega_{OA_z} = 16\frac{1}{c}$ ,  $R = 4$ ,  $OA = 7$ ,  
 $AB = 4$ ,  $BN = BC = 4$ ,  $CD = 8$ .

**Задача 26.31.**

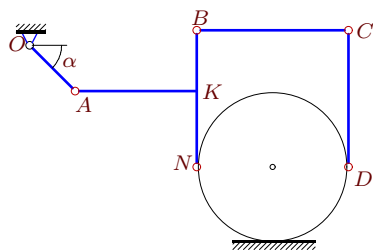
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$\omega_{OA_z} = 33\frac{1}{c}$ ,  $R = 8$ ,  $OA = 8$ ,  
 $CD = 16\sqrt{2}$ ,  $AN = 11$ ,  $AB = 27$ ,  $\alpha = 45^\circ$ .

**Задача 26.33.**

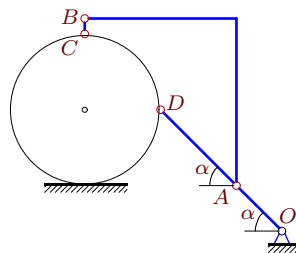
46



$\omega_{OA_z} = 5\frac{1}{c}$ ,  $R = 5$ ,  $OA = 3\sqrt{2}$ ,  
 $AK = 8$ ,  $BK = 4$ ,  $KN = 5$ ,  $CD = 9$ ,  $\alpha = 45^\circ$ .

**Задача 26.30.**

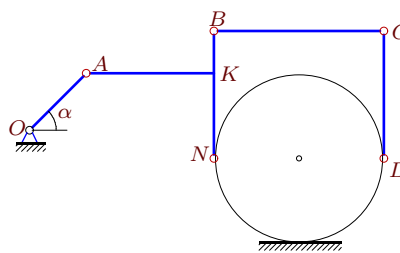
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$\omega_{OA_z} = 10\frac{1}{c}$ ,  $R = 5$ ,  $OA = 3\sqrt{2}$ ,  
 $AD = 5\sqrt{2}$ ,  $BC = 1$ ,  $\alpha = 45^\circ$ .

**Задача 26.32.**

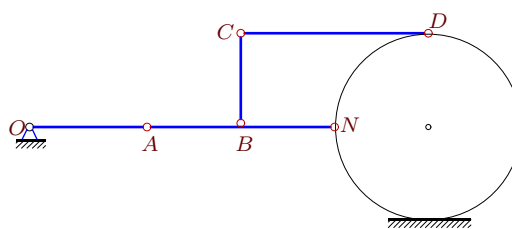
46



$\omega_{OA_z} = 3\frac{1}{c}$ ,  $R = 6$ ,  $OA = 4\sqrt{2}$ ,  
 $AK = 9$ ,  $BK = 3$ ,  $KN = 6$ ,  $CD = 9$ ,  $\alpha = 45^\circ$ .

**Задача 26.34.**

46



$\omega_{OA_z} = 16\frac{1}{c}$ ,  $R = 4$ ,  $OA = 5$ ,  
 $AB = 4$ ,  $BN = BC = 4$ ,  $CD = 8$ .

**Кинематический анализ плоского механизма**

№	$\omega_{AB_z}$	$\omega_{BC_z}$	$\omega_{CD_z}$	$\omega_{DA_z}$	$\omega_{диск_z}$
1	0	-2	0	—	-2
2	1	1	—	1	1
3	2	2	—	0	3
4	-3	-2	-3	—	0
5	36	13	36	—	-33
6	-4	7	-4	—	7
7	-4	6	-4	—	6
8	1	1	—	-2	4
9	3	3	—	0	6
10	-6	-4	-6	—	0
11	9	-9	9	—	-9
12	0	0	—	-1	1
13	-3	-2	-3	—	0
14	0	-10	-5	—	-10
15	0	1	0	—	3
16	-36	20	—	-108	0
17	1	1	—	-3	3
18	0	-2	0	—	-2
19	3	3	—	0	6
20	0	-2	2	—	-2
21	-8	10	-35	—	10
22	-1	-1	—	-2	0
23	0	-10	-5	—	-10
24	8	13	—	0	12
25	2	2	—	0	3
26	-3	3	1	—	3
27	35	42	35	—	56
28	0	15	10	—	15
29	-14	0	-7	—	0
30	-3	-3	—	-6	0
31	-24	-16	-24	—	0
32	-8	10	-8	—	10
33	0	-3	0	—	-3
34	-10	0	-5	—	0