

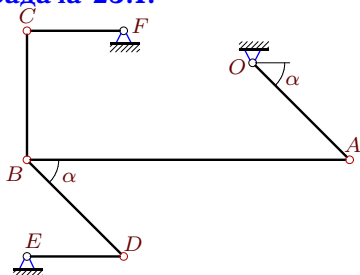
Механизм с двумя степенями свободы

В указанном положении механизма заданы угловые скорости двух его звеньев. Длины звеньев даны в сантиметрах. Стержни, направление которых не указано, считать горизонтальными или вертикальными. Найти угловые скорости всех звеньев механизма.

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

Задача 25.1.

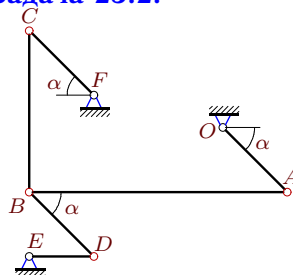
27



$$\omega_{CF_z} = 30 \frac{1}{c}, \omega_{DE_z} = -10 \frac{1}{c}, AB = 10, BC = 4, DE = 3, CF = 3, OA = BD = 3\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.2.

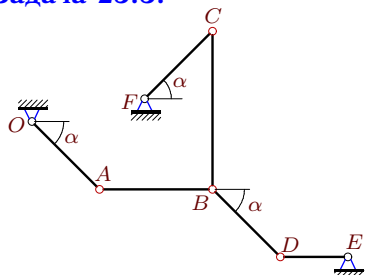
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$$\omega_{OA_z} = -20 \frac{1}{c}, \omega_{DE_z} = 20 \frac{1}{c}, AB = 8, BC = 5, DE = 2, OA = CF = BD = 2\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.3.

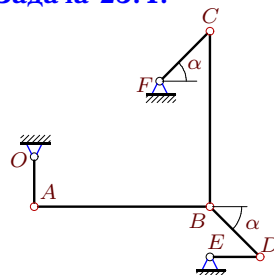
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$$\omega_{OA_z} = -35 \frac{1}{c}, \omega_{DE_z} = 35 \frac{1}{c}, AB = 5, BC = 7, DE = 3, OA = CF = BD = 3\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.4.

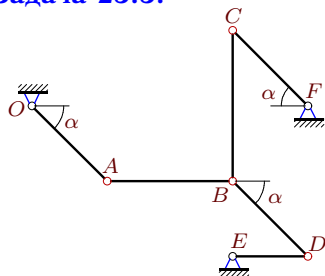
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$$\omega_{OA_z} = -7 \frac{1}{c}, \omega_{DE_z} = 14 \frac{1}{c}, AB = 7, BC = 7, DE = 2, OA = 2, CF = BD = 2\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.5.

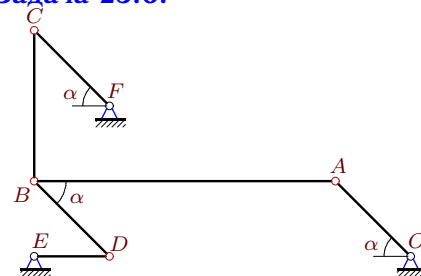
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$$\omega_{OA_z} = \omega_{DE_z} = 10 \frac{1}{c}, AB = 5, BC = 6, DE = 3, OA = CF = BD = 3\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.6.

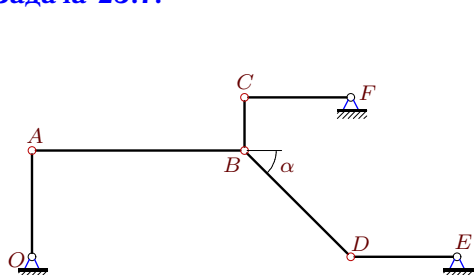
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$$\omega_{OA_z} = 2 \frac{1}{c}, \omega_{CF_z} = -2 \frac{1}{c}, AB = 8, BC = 4, DE = 2, OA = CF = BD = 2\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.7.

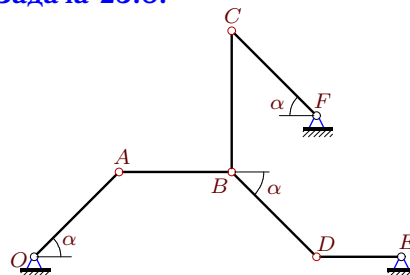
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$$\omega_{OA_z} = 2 \frac{1}{c}, \omega_{CF_z} = -2 \frac{1}{c}, AB = 8, BC = 2, DE = 4, OA = 4, CF = 4, BD = 4\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.8.

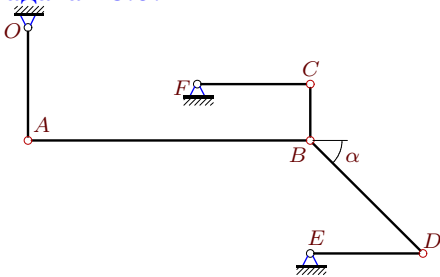
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$$\omega_{OA_z} = 5 \frac{1}{c}, \omega_{CF_z} = 15 \frac{1}{c}, AB = 4, BC = 5, DE = 3, OA = CF = BD = 3\sqrt{2}, \alpha = 45^\circ.$$

Задача 25.9.

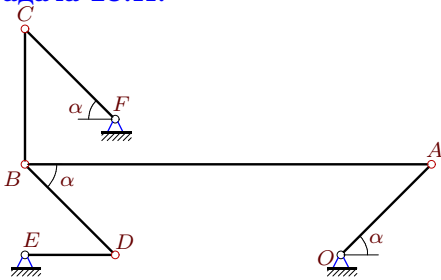
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$\omega_{CF_z} = 10\frac{1}{c}$, $\omega_{DE_z} = 5\frac{1}{c}$, $AB = 10$, $BC = 2$,
 $DE = 4$, $OA = 4$, $CF = 4$, $BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.11.

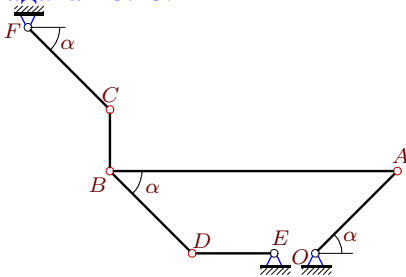
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$\omega_{OA_z} = -3\frac{1}{c}$, $\omega_{DE_z} = 3\frac{1}{c}$, $AB = 9$, $BC = 3$,
 $DE = 2$, $OA = CF = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.13.

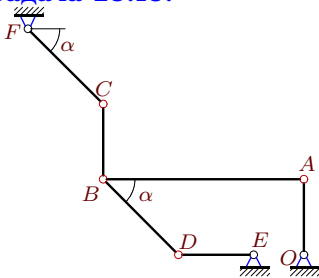
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$\omega_{OA_z} = \omega_{CF_z} = -3\frac{1}{c}$, $AB = 14$, $BC = 3$,
 $DE = 4$, $OA = CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.15.

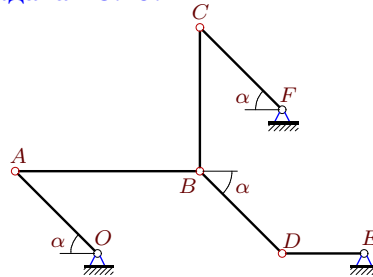
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$\omega_{OA_z} = 2\frac{1}{c}$, $\omega_{DE_z} = 6\frac{1}{c}$, $AB = 8$, $BC = 3$,
 $DE = 3$, $OA = 3$, $CF = BD = 3\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.10.

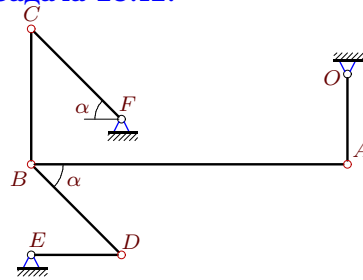
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$\omega_{OA_z} = 63\frac{1}{c}$, $\omega_{DE_z} = -126\frac{1}{c}$, $AB = 9$, $BC = 7$,
 $DE = 4$, $OA = CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.12.

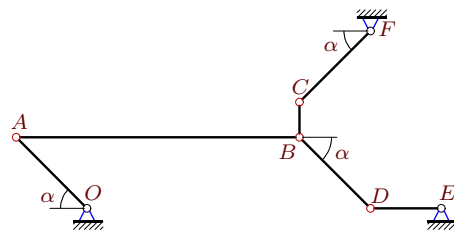
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$\omega_{OA_z} = 21\frac{1}{c}$, $\omega_{CF_z} = 63\frac{1}{c}$, $AB = 7$, $BC = 3$,
 $DE = 2$, $OA = 2$, $CF = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.14.

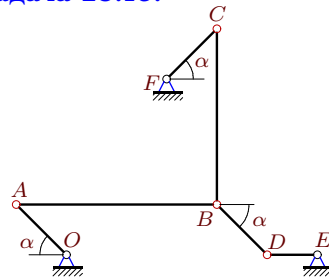
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$\omega_{OA_z} = \omega_{DE_z} = 4\frac{1}{c}$, $AB = 8$, $BC = 1$,
 $DE = 2$, $OA = CF = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.16.

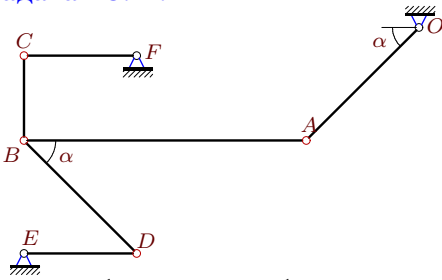
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$\omega_{OA_z} = \omega_{DE_z} = -28\frac{1}{c}$, $AB = 8$, $BC = 7$,
 $DE = 2$, $OA = CF = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.17.

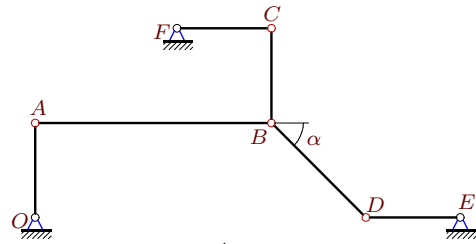
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$\omega_{CFz} = 9\frac{1}{c}$, $\omega_{DEz} = -3\frac{1}{c}$, $AB = 10$, $BC = 3$,
 $DE = 4$, $CF = 4$, $OA = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.18.

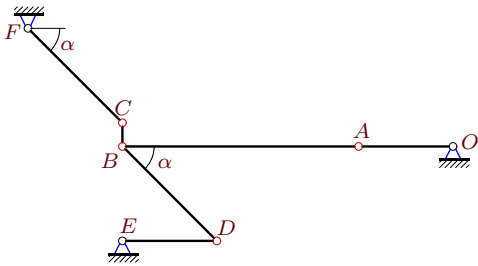
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$\omega_{OAz} = \omega_{CFz} = 5\frac{1}{c}$, $AB = 10$, $BC = 4$,
 $DE = 4$, $OA = 4$, $CF = 4$, $BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.19.

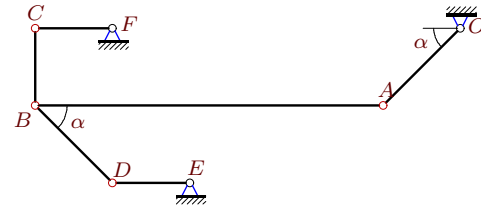
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$\omega_{OAz} = 1\frac{1}{c}$, $\omega_{DEz} = -1\frac{1}{c}$, $AB = 10$, $BC = 1$,
 $DE = 4$, $OA = 4$, $CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.20.

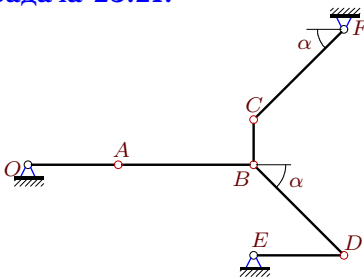
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$\omega_{OAz} = -3\frac{1}{c}$, $\omega_{DEz} = 3\frac{1}{c}$, $AB = 9$, $BC = 2$,
 $DE = 2$, $CF = 2$, $OA = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.21.

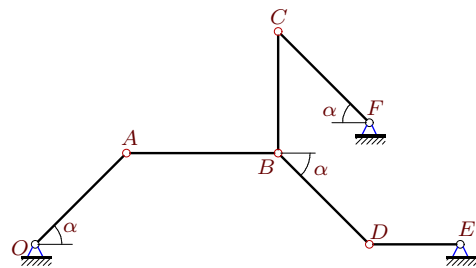
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$\omega_{OAz} = \omega_{DEz} = 1\frac{1}{c}$, $AB = 3$, $BC = 1$,
 $DE = 2$, $OA = 2$, $CF = BD = 2\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.22.

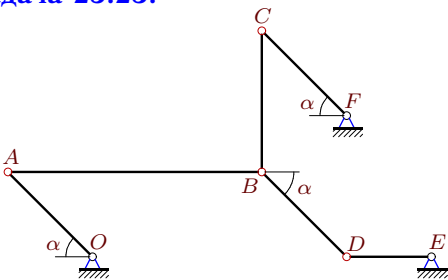
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$\omega_{OAz} = 10\frac{1}{c}$, $\omega_{DEz} = 20\frac{1}{c}$, $AB = 5$, $BC = 4$,
 $DE = 3$, $OA = CF = BD = 3\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.23.

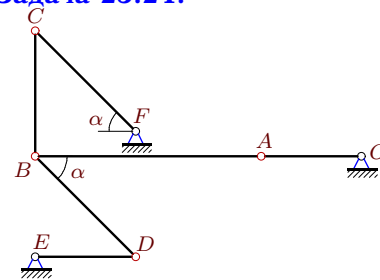
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$\omega_{OAz} = 15\frac{1}{c}$, $\omega_{CFz} = 30\frac{1}{c}$, $AB = 9$, $BC = 5$,
 $DE = 3$, $OA = CF = BD = 3\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.24.

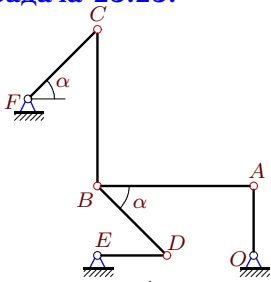
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$\omega_{OAz} = -5\frac{1}{c}$, $\omega_{DEz} = 5\frac{1}{c}$, $AB = 9$, $BC = 5$,
 $DE = 4$, $OA = 4$, $CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Задача 25.25.

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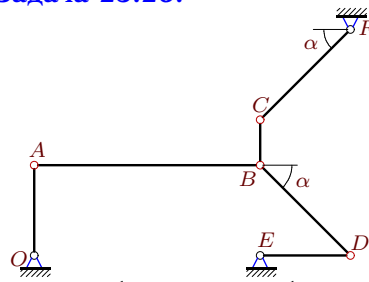


$\omega_{CFz} = -27\frac{1}{c}$, $\omega_{DEz} = 9\frac{1}{c}$, $AB = 9$, $BC = 9$,
 $DE = 4$, $OA = 4$, $CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

25.27

Задача 25.26.

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$\omega_{OAz} = 5\frac{1}{c}$, $\omega_{DEz} = 15\frac{1}{c}$, $AB = 10$, $BC = 2$,
 $DE = 4$, $OA = 4$, $CF = BD = 4\sqrt{2}$, $\alpha = 45^\circ$.

Механизм с двумя степенями свободы

26.10.2010

№	ω_{OA}	ω_{AB}	ω_{BC}	ω_{FC}	ω_{DB}	ω_{DE}
1	-20	3	-15	-	20	-
2	-	-5	-8	0	20	-
3	-	-21	-45	-70	35	-
4	-	2	0	7	7	-
5	-	6	-5	-20	-10	-
6	-	-1	-2	-	2	4
7	-	1	-4	-	2	-4
8	-	-15	6	-	5	10
9	5	4	10	-	-5	-
10	-	56	-72	-63	63	-
11	-	-2	-2	-6	-3	-
12	-	18	56	-	-21	-84
13	-	0	8	-	-3	6
14	-	-1	-24	8	4	-
15	-	3	6	-8	2	-
16	-	7	24	56	-28	-
17	-6	6	-8	-	6	-
18	-	2	-5	-	5	-10
19	-	0	4	-1	0	-
20	-	2	-3	6	3	-
21	-	0	2	-1	0	-
22	-	-24	15	30	10	-
23	-	-5	9	-	15	15
24	-	0	-4	-5	0	-
25	36	12	-28	-	36	-
26	-	4	10	-10	5	-