

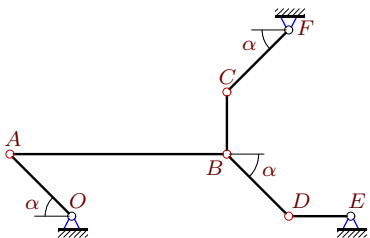
Механизм с двумя степенями свободы

В указанном положении механизма заданы угловые скорости двух его звеньев (с^{-1}). Длины звеньев даны в сантиметрах, $\alpha = 45^\circ$. 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 К-25.35.

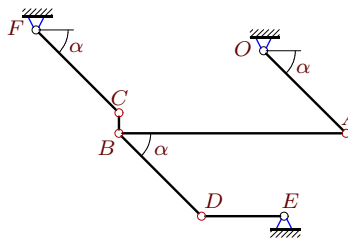
24



$$\omega_{CF_z} = \omega_{DE_z} = -7, AB = 7, BC = 2, DE = 2, OA = CF = BD = 2\sqrt{2}.$$

Задача К-25.36.

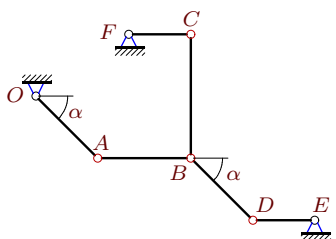
24



$$\omega_{OA_z} = -11, \omega_{CF_z} = -33, AB = 11, BC = 1, DE = 4, OA = CF = BD = 4\sqrt{2}.$$

Задача К-25.37.

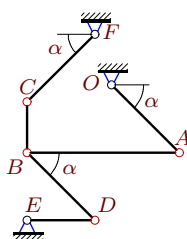
24



$$\omega_{OA_z} = 2, \omega_{CF_z} = -4, AB = 3, BC = 4, DE = 2, CF = 2, OA = BD = 2\sqrt{2}.$$

Задача К-25.38.

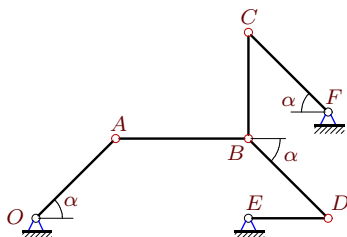
24



$$\omega_{CF_z} = 27, \omega_{DE_z} = -9, AB = 9, BC = 3, DE = 4, OA = CF = BD = 4\sqrt{2}.$$

Задача К-25.39.

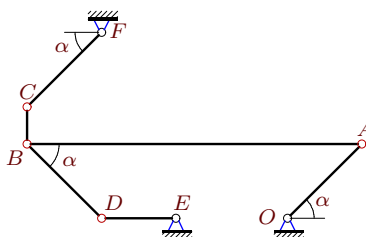
24



$$\omega_{OA_z} = 2, \omega_{DE_z} = 4, AB = 5, BC = 4, DE = 3, OA = CF = BD = 3\sqrt{2}.$$

Задача К-25.40.

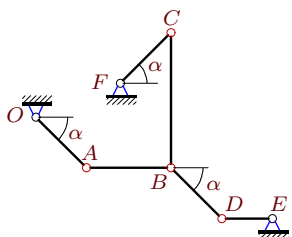
24



$$\omega_{OA_z} = \omega_{CF_z} = -9, AB = 9, BC = 1, DE = 2, OA = CF = BD = 2\sqrt{2}.$$

Задача К-25.41.

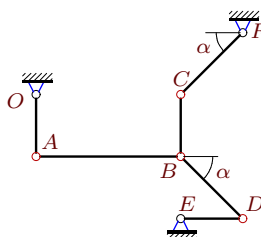
24



$$\omega_{CF_z} = -40, \omega_{DE_z} = 40, AB = 5, BC = 8, DE = 3, OA = CF = BD = 3\sqrt{2}.$$

Задача К-25.42.

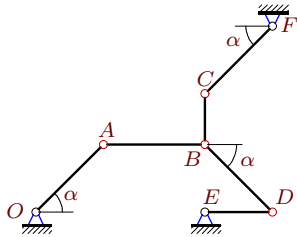
24



$$\omega_{CF_z} = -21, \omega_{DE_z} = 7, AB = 7, BC = 3, DE = 3, OA = 3, CF = BD = 3\sqrt{2}.$$

Задача К-25.43.

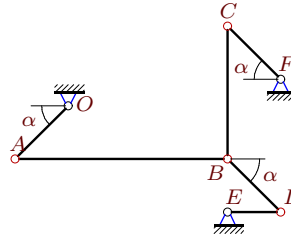
24



$\omega_{CF_z} = \omega_{DE_z} = -1$, $AB = 6$, $BC = 3$,
 $DE = 4$, $OA = CF = BD = 4\sqrt{2}$.

Задача К-25.44.

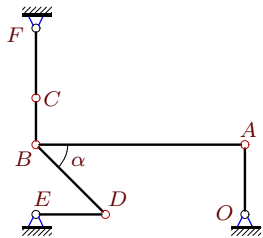
24



$\omega_{OA_z} = 5$, $\omega_{DE_z} = -10$, $AB = 8$, $BC = 5$,
 $DE = 2$, $OA = CF = BD = 2\sqrt{2}$.

Задача К-25.45.

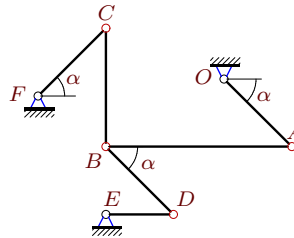
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$\omega_{OA_z} = 1$, $\omega_{CF_z} = -3$, $AB = 9$, $BC = 2$,
 $DE = 3$, $OA = 3$, $CF = 3$, $BD = 3\sqrt{2}$.

Задача К-25.46.

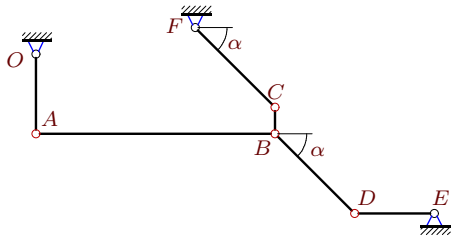
24



$\omega_{OA_z} = 77$, $\omega_{CF_z} = 231$, $AB = 11$, $BC = 7$,
 $DE = 4$, $OA = CF = BD = 4\sqrt{2}$.

Задача К-25.47.

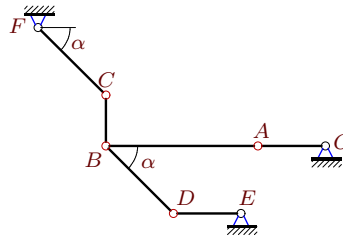
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$\omega_{CF_z} = 3$, $\omega_{DE_z} = 1$, $AB = 9$, $BC = 1$,
 $DE = 3$, $OA = 3$, $CF = BD = 3\sqrt{2}$.

Задача К-25.48.

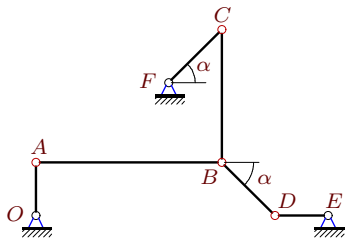
24



$\omega_{OA_z} = 3$, $\omega_{DE_z} = -6$, $AB = 9$, $BC = 3$,
 $DE = 4$, $OA = 4$, $CF = BD = 4\sqrt{2}$.

Задача К-25.49.

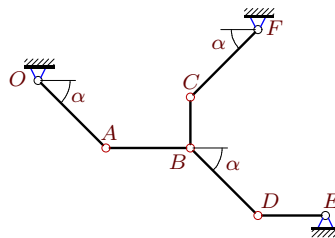
24



$\omega_{CF_z} = 70$, $\omega_{DE_z} = -35$, $AB = 7$, $BC = 5$,
 $DE = 2$, $OA = 2$, $CF = BD = 2\sqrt{2}$.

Задача К-25.50.

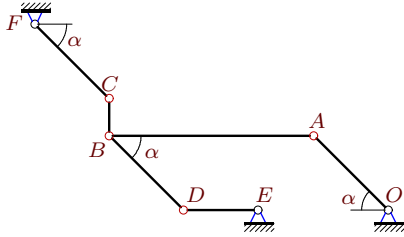
24



$\omega_{OA_z} = \omega_{CF_z} = 5$, $AB = 5$, $BC = 3$,
 $DE = 4$, $OA = CF = BD = 4\sqrt{2}$.

Задача К-25.51.

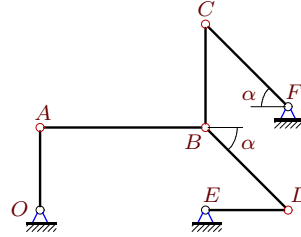
24



$\omega_{OA_z} = -11, \omega_{CF_z} = 33, AB = 11, BC = 2,$
 $DE = 4, OA = CF = BD = 4\sqrt{2}.$

Задача К-25.52.

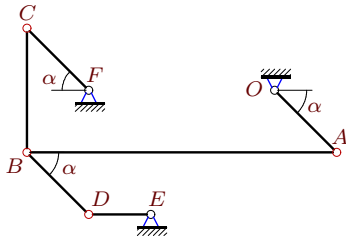
24



$\omega_{OA_z} = -10, \omega_{CF_z} = 30, AB = 8, BC = 5,$
 $DE = 4, OA = 4, CF = BD = 4\sqrt{2}.$

Задача К-25.53.

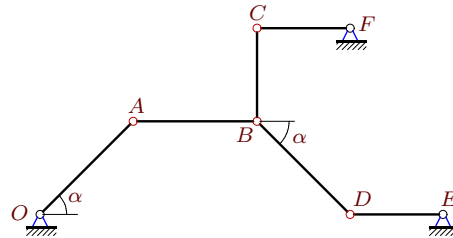
24



$\omega_{OA_z} = -5, \omega_{DE_z} = 10, AB = 10, BC = 4,$
 $DE = 2, OA = CF = BD = 2\sqrt{2}.$

Задача К-25.54.

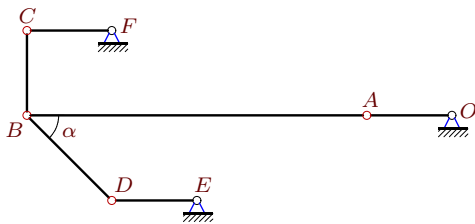
24



$\omega_{CF_z} = 4, \omega_{DE_z} = -4, AB = 4, BC = 3,$
 $DE = 3, CF = 3, OA = BD = 3\sqrt{2}.$

Задача К-25.55.

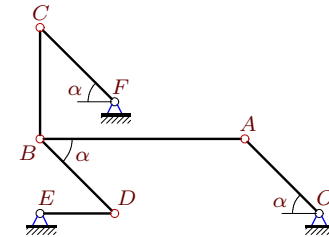
24



$\omega_{OA_z} = -2, \omega_{DE_z} = 2, AB = 8, BC = 2,$
 $DE = 2, OA = 2, CF = 2, BD = 2\sqrt{2}.$

Задача К-25.56.

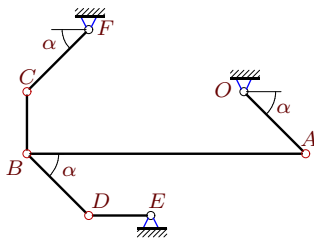
24



$\omega_{OA_z} = -11, \omega_{DE_z} = -33, AB = 11, BC = 6,$
 $DE = 4, OA = CF = BD = 4\sqrt{2}.$

Задача К-25.57.

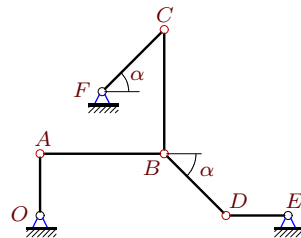
24



$\omega_{OA_z} = -9, \omega_{DE_z} = 9, AB = 9, BC = 2,$
 $DE = 2, OA = CF = BD = 2\sqrt{2}.$

Задача К-25.58.

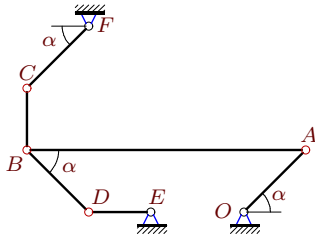
24



$\omega_{CF_z} = 4, \omega_{DE_z} = -2, AB = BC = 8, DE = 4,$
 $OA = 4, CF = BD = 4\sqrt{2}.$

Задача К-25.59.

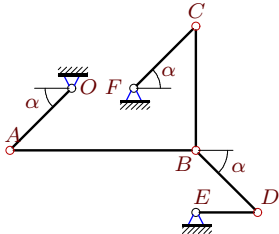
24



$\omega_{CF_z} = -18, \omega_{DE_z} = 9, AB = 9, BC = 2,$
 $DE = 2, OA = CF = BD = 2\sqrt{2}.$

Задача К-25.61.

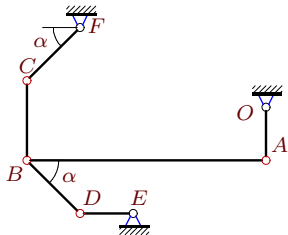
24



$\omega_{OA_z} = -6, \omega_{DE_z} = 6, AB = 9, BC = 6,$
 $DE = 3, OA = CF = BD = 3\sqrt{2}.$

Задача К-25.63.

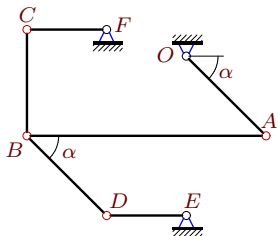
24



$\omega_{OA_z} = -9, \omega_{CF_z} = 18, AB = 9, BC = 3,$
 $DE = 2, OA = 2, CF = BD = 2\sqrt{2}.$

Задача К-25.65.

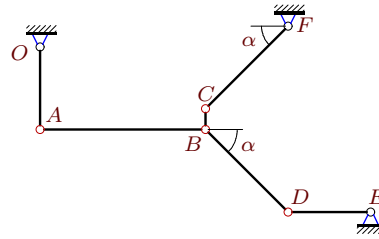
24



$\omega_{OA_z} = -4, \omega_{DE_z} = -12, AB = 9, BC = 4,$
 $DE = 3, CF = 3, OA = BD = 3\sqrt{2}.$

Задача К-25.60.

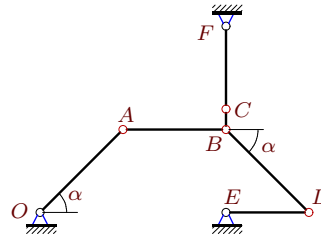
24



$\omega_{OA_z} = 2, \omega_{CF_z} = 6, AB = 8, BC = 1,$
 $DE = 4, OA = 4, CF = BD = 4\sqrt{2}.$

Задача К-25.62.

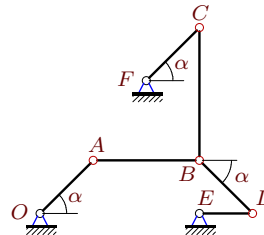
24



$\omega_{OA_z} = \omega_{CF_z} = -5, AB = 5, BC = 1,$
 $DE = 4, CF = 4, OA = BD = 4\sqrt{2}.$

Задача К-25.64.

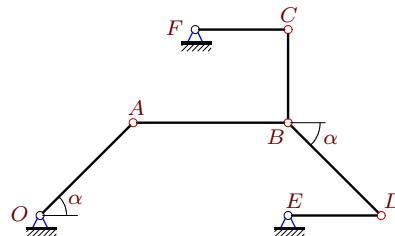
24



$\omega_{OA_z} = -5, \omega_{CF_z} = 15, AB = 4, BC = 5,$
 $DE = 2, OA = CF = BD = 2\sqrt{2}.$

Задача К-25.66.

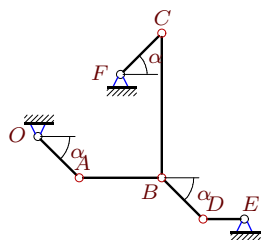
24



$\omega_{CF_z} = \omega_{DE_z} = 5, AB = 5, BC = 3,$
 $DE = 3, CF = 3, OA = BD = 3\sqrt{2}.$

Задача К-25.67.

24

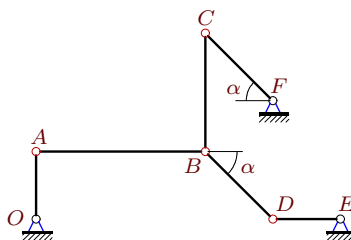


$\omega_{CF_z} = -28, \omega_{DE_z} = 14, AB = 4, BC = 7,$
 $DE = 2, OA = CF = BD = 2\sqrt{2}.$

К-25

Задача К-25.68.

24



$\omega_{OA_z} = \omega_{DE_z} = 35, AB = 10, BC = 7,$
 $DE = 4, OA = 4, CF = BD = 4\sqrt{2}.$

Ответы.

Механизм с двумя степенями свободы

23.04.2015

№	ω_{OA}	ω_{AB}	ω_{BC}	ω_{FC}	ω_{DB}	ω_{DE}
35	0	2	7	—	0	—
36	—	8	88	—	11	22
37	—	—4	1	—	—2	6
38	—18	4	—60	—	18	—
39	—	0	—3	—2	2	—
40	—	—4	36	—	—9	0
41	0	—24	—15	—	0	—
42	14	9	35	—	—14	—
43	—2	2	4	—	—2	—
44	—	0	4	5	—5	—
45	—	0	3	—	1	1
46	—	—56	176	—	—77	154
47	4	1	3	—	—4	—
48	—	—4	—8	6	0	—
49	—35	20	42	—	—35	—
50	—	—8	0	—	—5	10
51	—	—8	—44	—	—11	—22
52	—	—15	32	—	—10	—40
53	—	2	5	15	5	—
54	8	—9	—8	—	8	—
55	—	1	0	2	0	—
56	—	12	22	22	—11	—
57	—	2	—27	18	9	—
58	—2	2	3	—	—2	—
59	—27	—10	45	—	—27	—
60	—	—3	—16	—	—2	8
61	—	—2	—3	0	6	—
62	—	4	40	—	—5	—5
63	—	4	—18	—	9	9
64	—	10	8	—	—5	10
65	—	—4	—3	—8	4	—
66	0	3	0	—	0	—
67	—14	—7	—12	—	14	—
68	—	—28	20	70	35	—