

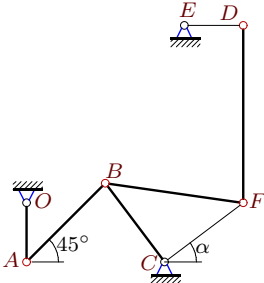
Кинематический анализ механизма (5 звеньев)

В указанном положении механизма задана угловая скорость одного из его звеньев. Длины звеньев даны в сантиметрах. Стержни, направление которых не указано, считать вертикальными или горизонтальными. Найти угловые скорости звеньев механизма.

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

Задача 23.1.

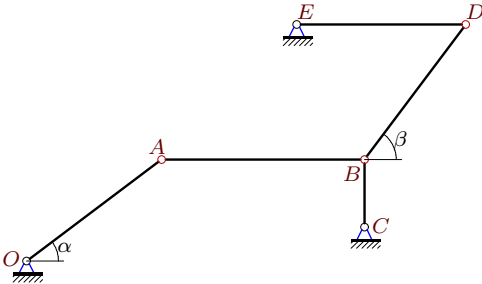
5



$\omega_{OA} = 28$ рад/с, $OA = 3$, $DF=9$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.3.

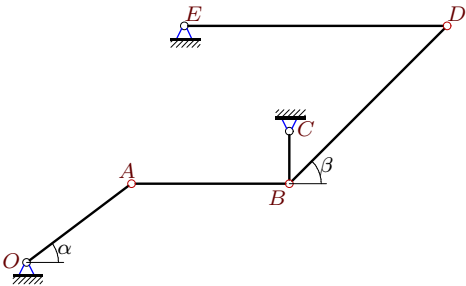
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.5.

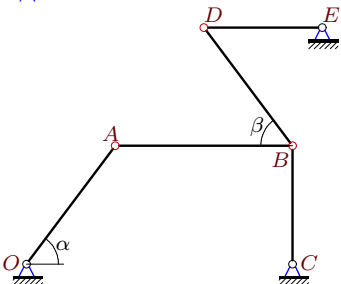
5



$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 10$, $BD = 6\sqrt{2}$, $\cos \alpha = 0.8$, $\beta = 45^\circ$.

Задача 23.7.

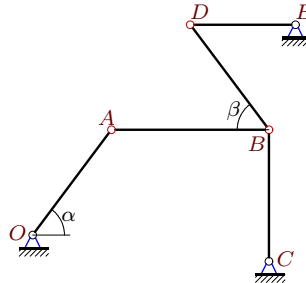
5



$\omega_{OA} = 4$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 4$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.2.

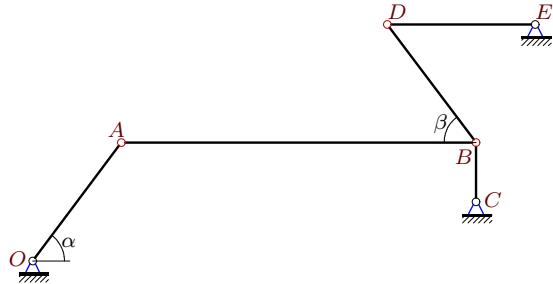
5



$\omega_{OA} = 20$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$,
 $DE = 4$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.4.

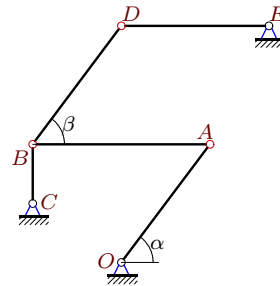
5



$\omega_{OA} = 20$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.6.

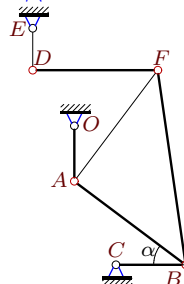
5



$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.8.

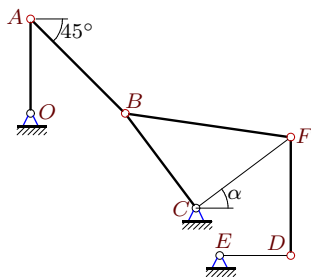
5



$\omega_{OA} = 45$ рад/с, $OA = 4$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.9.

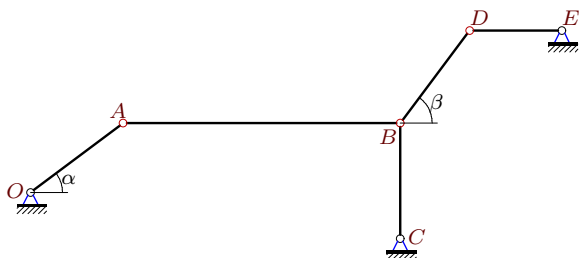
5



$\omega_{OA} = 15$ рад/с, $OA = 4$, $DF=5$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.11.

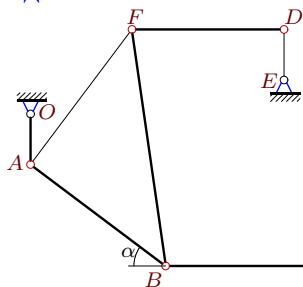
5



$\omega_{OA} = 240$ рад/с, $OA = 5$, $AB = 12$, $BC = 5$,
 $DE = 4$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.13.

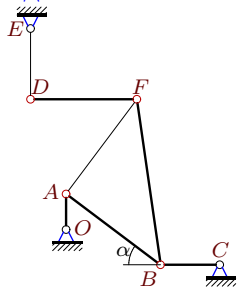
5



$\omega_{OA} = 30$ рад/с, $OA = 3$, $AB=AF=10$,
 $BC = 10$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.15.

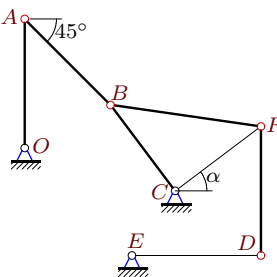
5



$\omega_{OA} = 30$ рад/с, $OA = 3$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=6$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.10.

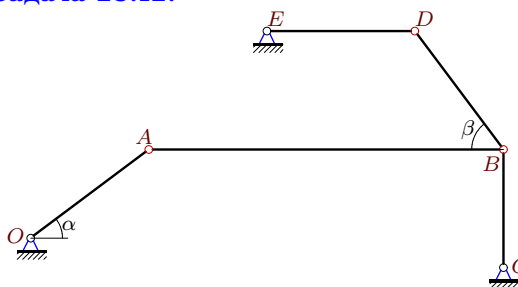
5



$\omega_{OA} = 2$ рад/с, $OA = 6$, $DF=6$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=6$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.12.

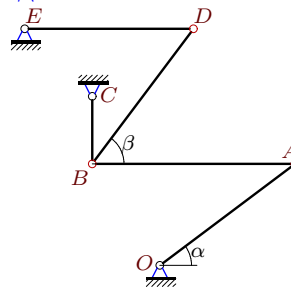
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 4$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.14.

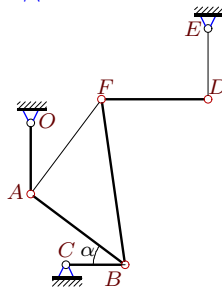
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.16.

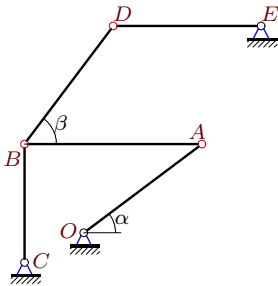
5



$\omega_{OA} = 15$ рад/с, $OA = 6$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=6$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.17.

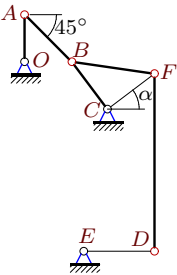
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.19.

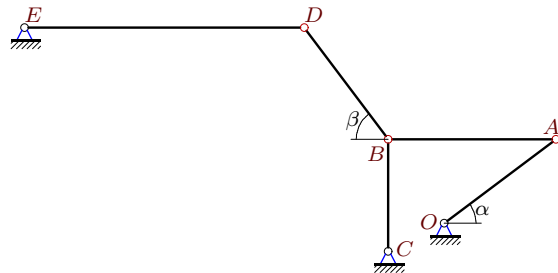
5



$\omega_{OA} = 15$ рад/с, $OA = 4$, $DF=15$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=6$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.21.

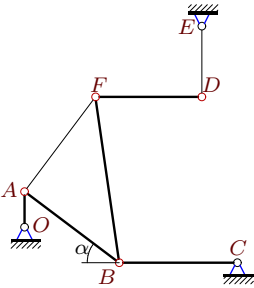
5



$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 10$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.23.

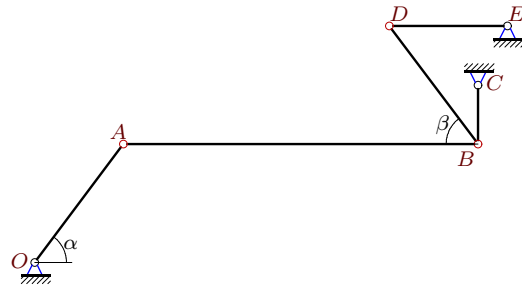
5



$\omega_{OA} = 30$ рад/с, $OA = 3$, $AB=AF=10$,
 $BC = 10$, $DF=9$, $DE=6$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.18.

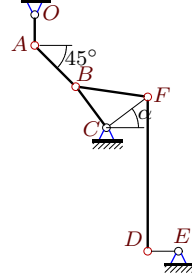
5



$\omega_{OA} = 4$ рад/с, $OA = 5$, $AB = 12$, $BC = 2$,
 $DE = 4$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.20.

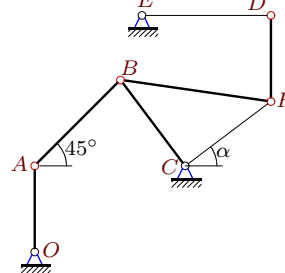
5



$\omega_{OA} = 20$ рад/с, $OA = 3$, $DF=15$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.22.

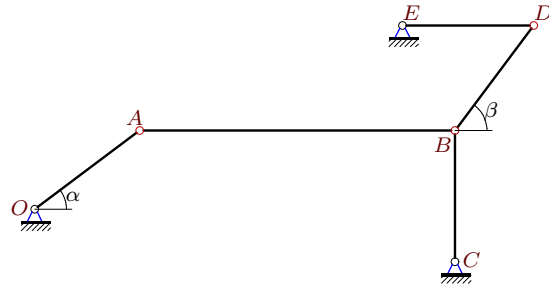
5



$\omega_{OA} = 21$ рад/с, $OA = 4$, $DF=4$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=6$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.24.

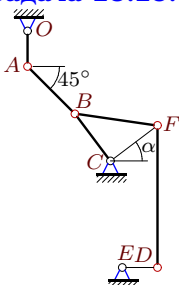
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 12$, $BC = 5$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.25.

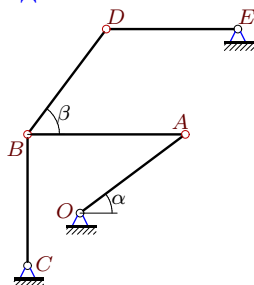
5



$\omega_{OA} = 4$ рад/с, $OA = 3$, $DF=12$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.27.

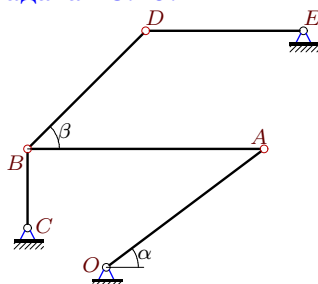
5



$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.29.

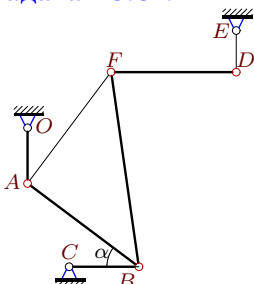
5



$\omega_{OA} = 12$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 4$, $BD = 3\sqrt{2}$, $\cos \alpha = 0.8$, $\beta = 45^\circ$.

Задача 23.31.

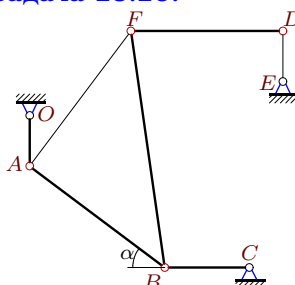
5



$\omega_{OA} = 45$ рад/с, $OA = 4$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.26.

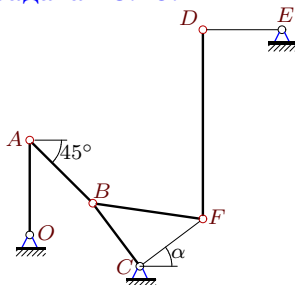
5



$\omega_{OA} = 30$ рад/с, $OA = 3$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.28.

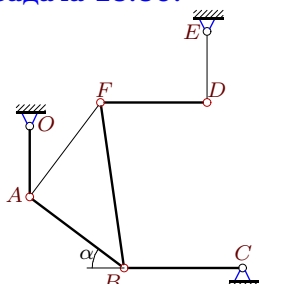
5



$\omega_{OA} = 10$ рад/с, $OA = 6$, $DF=12$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=5$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.30.

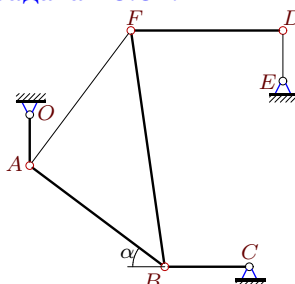
5



$\omega_{OA} = 15$ рад/с, $OA = 6$, $AB=AF=10$,
 $BC = 10$, $DF=9$, $DE=6$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.32.

5



$\omega_{OA} = 30$ рад/с, $OA = 3$, $AB=AF=10$,
 $BC = 5$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Кинематический анализ механизма (5 звеньев)

№	ω_{AB}	ω_{BC}	ω_{DB}	ω_{DF}	ω_{DE}
1	9	12	—	4	16
2	10	16	20	—	15
3	40	90	45	—	27
4	5	40	20	—	12
5	20	45	15	—	9
6	5	20	10	—	6
7	2	4	4	—	3
8	30	48	—	20	140
9	45	60	—	36	80
10	9	12	—	6	8
11	80	144	180	—	135
12	20	45	45	—	27
13	15	12	—	10	70
14	40	90	45	—	27
15	15	24	—	10	35
16	15	24	—	10	35
17	40	45	45	—	27
18	1	8	4	—	3
19	45	60	—	12	40
20	45	60	—	12	80
21	80	90	90	—	27
22	9	12	—	9	8
23	15	12	—	10	35
24	20	36	45	—	27
25	9	12	—	3	16
26	15	24	—	10	70
27	40	36	45	—	27
28	45	60	—	15	48
29	8	18	12	—	9
30	15	12	—	10	35
31	30	48	—	20	140
32	15	24	—	10	70