

Кинематический анализ механизма (5 звеньев)

В указанном положении механизма задана угловая скорость одного из его звеньев. Длины звеньев даны в сантиметрах. Найти угловые скорости звеньев механизма.

Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2002.– 384 с. (с.158.)

Задача 23.1. 15

$\omega_{OA} = 20 \text{ рад/с}, OA = 3, DF=12, BC=CF=5,$
 $AB = 4\sqrt{2}, DE=5, \cos \alpha=0.8, CB \perp CF.$

Задача 23.2. 15

$\omega_{OA} = 27 \text{ рад/с}, OA = 4, AB=AF=10,$
 $BC = 9, DF=9, DE=3, \cos \alpha=0.8, AB \perp AF.$

Задача 23.3. 15

$\omega_{OA} = 4 \text{ рад/с}, OA = 3, DF=6, BC=CF=5,$
 $AB = 4\sqrt{2}, DE=3, \cos \alpha=0.8, CB \perp CF.$

Задача 23.4. 15

$\omega_{OA} = 18 \text{ рад/с}, OA = 3, AB=AF=10,$
 $BC = 9, DF=9, DE=3, \cos \alpha=0.8, AB \perp AF.$

Задача 23.5. 15

$\omega_{OA} = 60 \text{ рад/с}, OA = 5, AB = 12, BC = 2,$
 $DE = 5, BD = 5, \cos \alpha = 0.8, \cos \beta = 0.6.$

Задача 23.6. 15

$\omega_{OA} = 30 \text{ рад/с}, OA = 5, AB = 6, BC = 2,$
 $DE = 5, BD = 3\sqrt{2}, \cos \alpha = 0.8, \beta = 45^\circ.$

Задача 23.7. 15

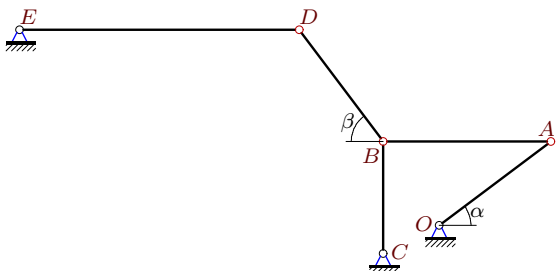
$\omega_{OA} = 8 \text{ рад/с}, OA = 5, AB = 8, BC = 2,$
 $DE = 4, BD = 5, \cos \alpha = 0.6, \cos \beta = 0.6.$

Задача 23.8. 15

$\omega_{OA} = 140 \text{ рад/с}, OA = 3, DF=5, BC=CF=5,$
 $AB = 4\sqrt{2}, DE=3, \cos \alpha=0.8, CB \perp CF.$

Задача 23.9.

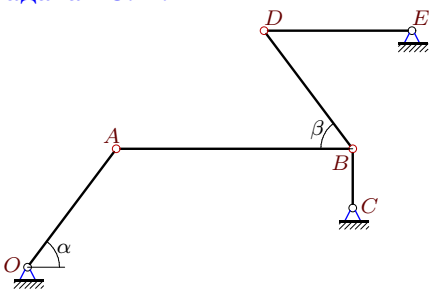
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$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 10$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.11.

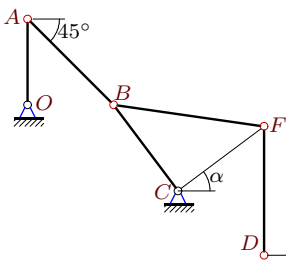
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$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.13.

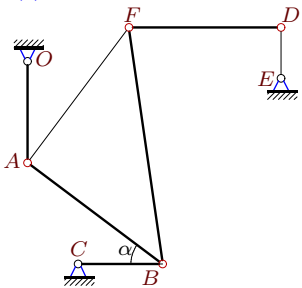
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$\omega_{OA} = 3$ рад/с, $OA = 4$, $DF = 6$, $BC = CF = 5$,
 $AB = 4\sqrt{2}$, $DE = 3$, $\cos \alpha = 0.8$, $CB \perp CF$.

Задача 23.15.

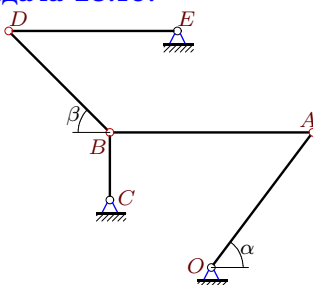
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$\omega_{OA} = 15$ рад/с, $OA = 6$, $AB = AF = 10$,
 $BC = 5$, $DF = 9$, $DE = 3$, $\cos \alpha = 0.8$, $AB \perp AF$.

Задача 23.10.

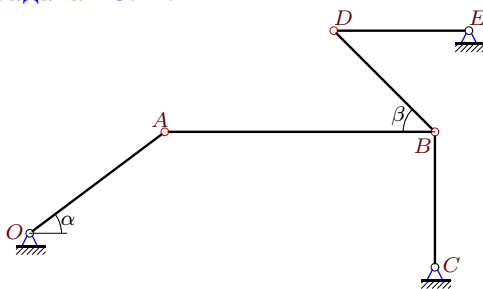
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$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 3\sqrt{2}$, $\cos \alpha = 0.6$, $\beta = 45^\circ$.

Задача 23.12.

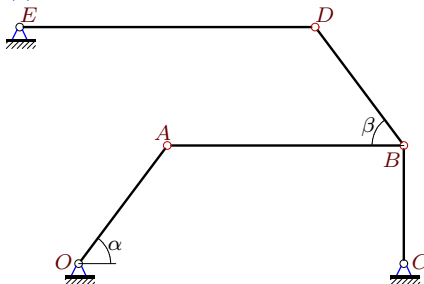
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$\omega_{OA} = 4$ рад/с, $OA = 5$, $AB = 8$, $BC = 4$,
 $DE = 4$, $BD = 3\sqrt{2}$, $\cos \alpha = 0.8$, $\beta = 45^\circ$.

Задача 23.14.

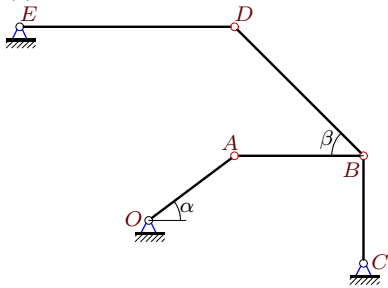
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$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 4$,
 $DE = 10$, $BD = 5$, $\cos \alpha = 0.6$, $\cos \beta = 0.6$.

Задача 23.16.

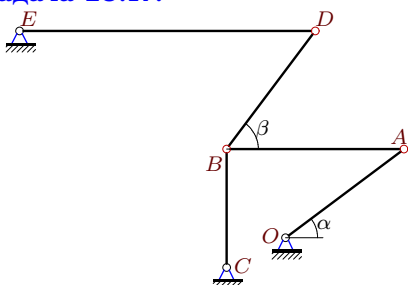
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$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 5$,
 $DE = 10$, $BD = 6\sqrt{2}$, $\cos \alpha = 0.8$, $\beta = 45^\circ$.

Задача 23.17.

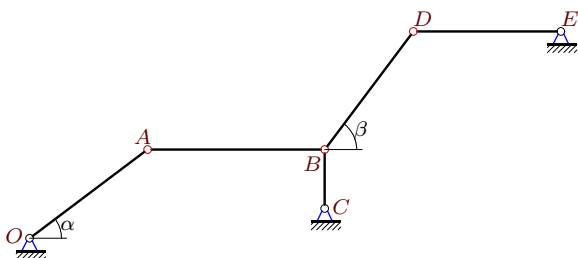
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$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 10$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.19.

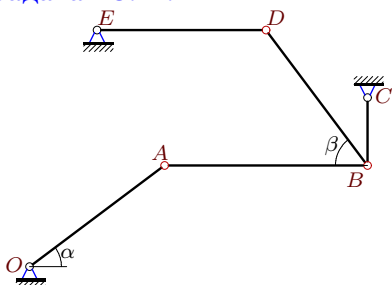
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$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.21.

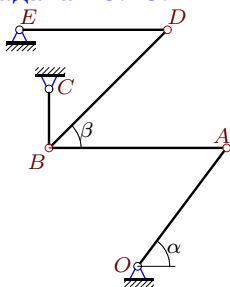
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$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.23.

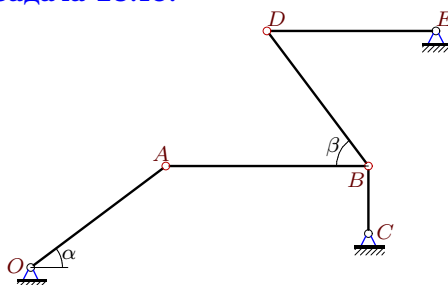
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$\omega_{OA} = 10$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 4\sqrt{2}$, $\cos \alpha = 0.6$, $\beta = 45^\circ$.

Задача 23.18.

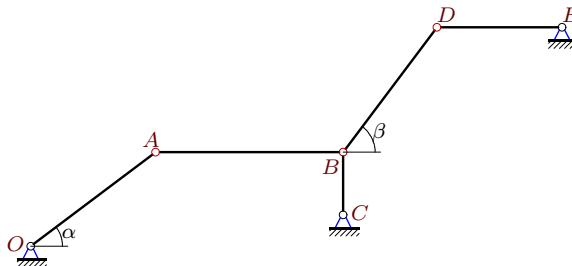
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$\omega_{OA} = 60$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.20.

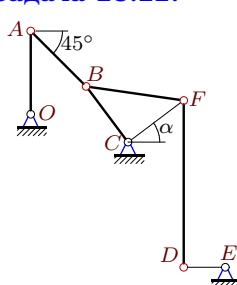
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$\omega_{OA} = 48$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 4$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Задача 23.22.

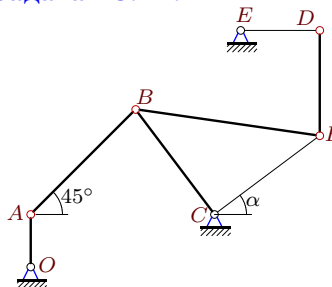
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$\omega_{OA} = 2$ рад/с, $OA = 6$, $DF = 12$, $BC = CF = 5$,
 $AB = 4\sqrt{2}$, $DE = 3$, $\cos \alpha = 0.8$, $CB \perp CF$.

Задача 23.24.

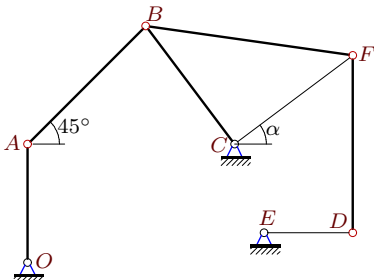
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$\omega_{OA} = 42$ рад/с, $OA = 2$, $DF = 4$, $BC = CF = 5$,
 $AB = 4\sqrt{2}$, $DE = 3$, $\cos \alpha = 0.8$, $CB \perp CF$.

Задача 23.25.

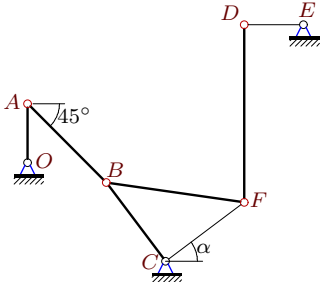
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$\omega_{OA} = 21$ рад/с, $OA = 4$, $DF=6$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.27.

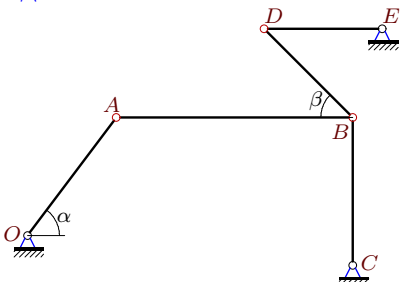
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$\omega_{OA} = 4$ рад/с, $OA = 3$, $DF=9$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=3$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.29.

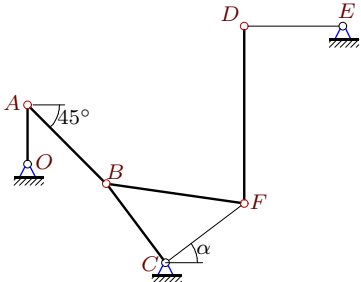
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$\omega_{OA} = 120$ рад/с, $OA = 5$, $AB = 8$, $BC = 5$,
 $DE = 4$, $BD = 3\sqrt{2}$, $\cos \alpha = 0.6$, $\beta = 45^\circ$.

Задача 23.31.

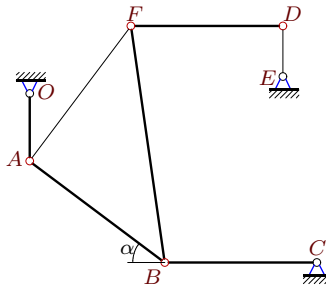
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$\omega_{OA} = 20$ рад/с, $OA = 3$, $DF=9$, $BC=CF=5$,
 $AB = 4\sqrt{2}$, $DE=5$, $\cos \alpha=0.8$, $CB \perp CF$.

Задача 23.26.

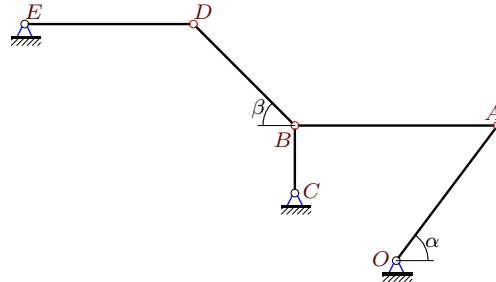
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$\omega_{OA} = 27$ рад/с, $OA = 4$, $AB=AF=10$,
 $BC = 9$, $DF=9$, $DE=3$, $\cos \alpha=0.8$, $AB \perp AF$.

Задача 23.28.

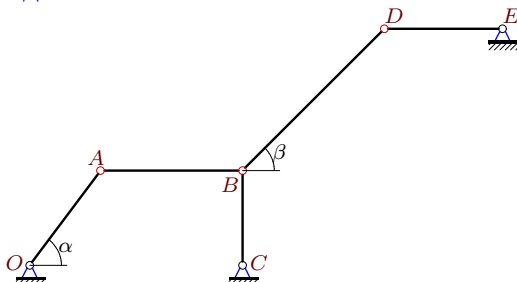
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$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 2$,
 $DE = 5$, $BD = 3\sqrt{2}$, $\cos \alpha = 0.6$, $\beta = 45^\circ$.

Задача 23.30.

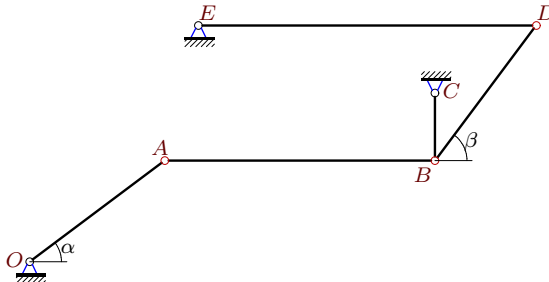
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$\omega_{OA} = 30$ рад/с, $OA = 5$, $AB = 6$, $BC = 4$,
 $DE = 5$, $BD = 6\sqrt{2}$, $\cos \alpha = 0.6$, $\beta = 45^\circ$.

Задача 23.32.

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$\omega_{OA} = 40$ рад/с, $OA = 5$, $AB = 8$, $BC = 2$,
 $DE = 10$, $BD = 5$, $\cos \alpha = 0.8$, $\cos \beta = 0.6$.

Кинематический анализ механизма (5 звеньев)

№	ω_{AB}	ω_{BC}	ω_{DB}	ω_{DF}	ω_{DE}
1	45	60	—	15	48
2	18	16	—	12	84
3	9	12	—	6	16
4	9	8	—	6	42
5	20	90	45	—	27
6	20	45	30	—	18
7	3	16	8	—	6
8	45	60	—	36	80
9	80	90	90	—	27
10	15	60	40	—	24
11	15	80	40	—	24
12	2	3	4	—	3
13	9	12	—	6	16
14	15	40	40	—	12
15	15	24	—	10	70
16	20	18	15	—	9
17	80	90	90	—	27
18	40	90	45	—	27
19	40	90	45	—	27
20	32	72	36	—	27
21	40	90	45	—	27
22	9	12	—	3	16
23	5	20	10	—	8
24	9	12	—	9	16
25	9	12	—	6	16
26	18	16	—	12	84
27	9	12	—	4	16
28	15	60	40	—	24
29	45	96	160	—	120
30	15	30	20	—	24
31	45	60	—	20	48
32	20	60	30	—	9