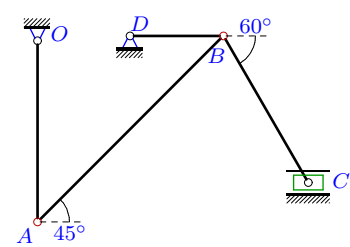
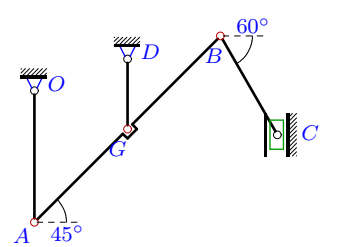
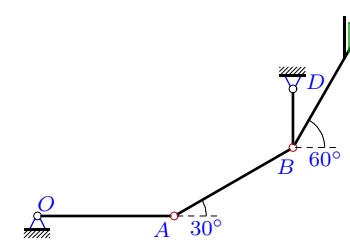
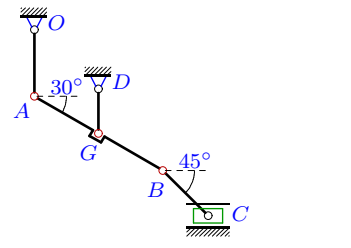
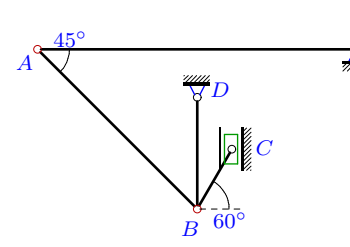
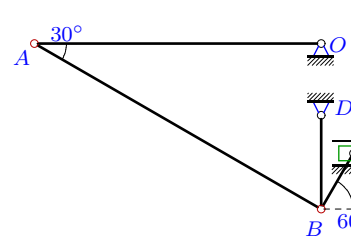
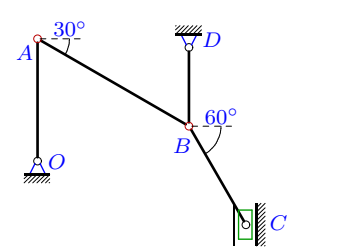
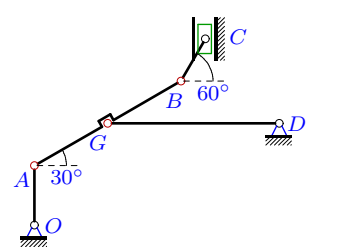
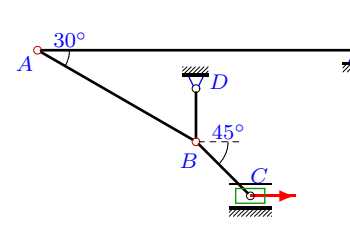
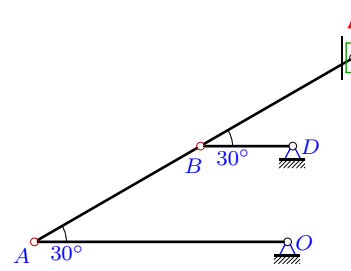


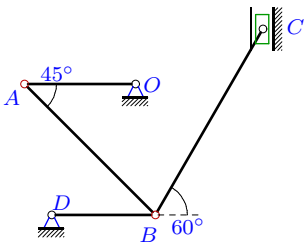
# Кинематический анализ механизма (4звена)

Найти скорости и ускорения шарниров плоского механизма.

Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.- М.:ФИЗМАТЛИТ, 2002.- 384 с. (с. 279.)

<p><b>Задача 7.1</b></p>  <p style="text-align: right;"> <math>\omega_{OA} = 1</math> рад/с,  <math>OA = 31</math> см,  <math>DB = 16</math> см,  <math>AB = 45</math> см,  <math>BC = 29</math> см.                 </p>	<p><b>Задача 7.2</b></p>  <p style="text-align: right;"> <math>\omega_{OA} = 2</math> рад/с,  <math>OA = 30</math> см,  <math>BG = 30</math> см,  <math>DG = 16</math> см,  <math>AG = 30</math> см,  <math>BC = 26</math> см.                 </p>
<p><b>Задача 7.3</b></p>  <p style="text-align: right;"> <math>\omega_{OA} = 3</math> рад/с,  <math>OA = 28</math> см,  <math>DB = 12</math> см,  <math>AB = 28</math> см,  <math>BC = 26</math> см.                 </p>	<p><b>Задача 7.4</b></p>  <p style="text-align: right;"> <math>\omega_{OA} = 4</math> рад/с,  <math>OA = 27</math> см,  <math>BG = 30</math> см,  <math>DG = 18</math> см,  <math>AG = 30</math> см,  <math>BC = 26</math> см.                 </p>
<p><b>Задача 7.5</b></p>  <p style="text-align: right;"> <math>\omega_{OA} = 5</math> рад/с,  <math>OA = 120</math> см,  <math>DB = 42</math> см,  <math>AB = 85</math> см,  <math>BC = 26</math> см.                 </p>	<p><b>Задача 7.6</b></p>  <p style="text-align: right;"> <math>\omega_{DB} = 6</math> рад/с,  <math>OA = 116</math> см,  <math>DB = 38</math> см,  <math>AB = 134</math> см,  <math>BC = 26</math> см.                 </p>
<p><b>Задача 7.7</b></p>  <p style="text-align: right;"> <math>\omega_{DB} = 7</math> рад/с,  <math>OA = 28</math> см,  <math>DB = 18</math> см,  <math>AB = 40</math> см,  <math>BC = 26</math> см.                 </p>	<p><b>Задача 7.8</b></p>  <p style="text-align: right;"> <math>\omega_{DG} = 8</math> рад/с,  <math>OA = 28</math> см,  <math>BG = 40</math> см,  <math>DG = 81</math> см,  <math>AG = 40</math> см,  <math>BC = 23</math> см.                 </p>
<p><b>Задача 7.9</b></p>  <p style="text-align: right;"> <math>v_C = 45</math> см/с,  <math>OA = 108</math> см,  <math>DB = 18</math> см,  <math>AB = 62</math> см,  <math>BC = 26</math> см.                 </p>	<p><b>Задача 7.10</b></p>  <p style="text-align: right;"> <math>v_C = 50</math> см/с,  <math>OA = 33</math> см,  <math>DB = 12</math> см,  <math>AB = 25</math> см,  <math>BC = 23</math> см.                 </p>

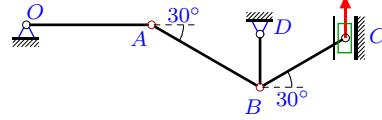
**Задача 7.11**



$\omega_{OA} = 11$  рад/с,  
 $OA = 15$  см,  
 $DB = 14$  см,  
 $AB = 25$  см,  
 $BC = 29$  см.

7.1

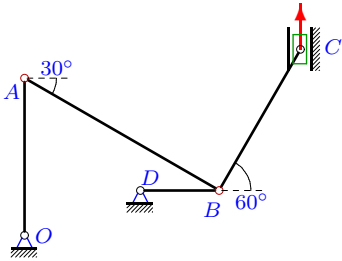
**Задача 7.12**



$v_C = 60$  см/с,  
 $OA = 33$  см,  
 $DB = 14$  см,  
 $AB = 33$  см,  
 $BC = 26$  см.

7.1

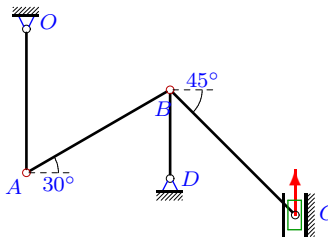
**Задача 7.13**



$v_C = 65$  см/с,  
 $OA = 28$  см,  
 $DB = 14$  см,  
 $AB = 40$  см,  
 $BC = 29$  см.

7.1

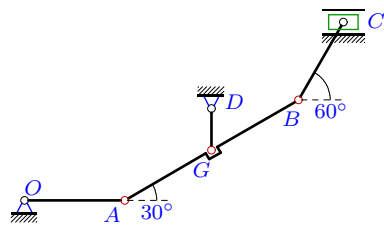
**Задача 7.14**



$v_C = 70$  см/с,  
 $OA = 26$  см,  
 $DB = 16$  см,  
 $AB = 30$  см,  
 $BC = 32$  см.

7.1

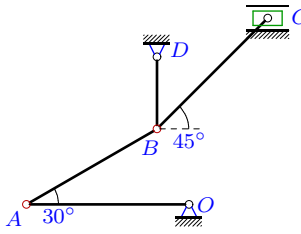
**Задача 7.15**



$\omega_{DG} = 15$  рад/с,  
 $OA = 29$  см,  
 $BG = 29$  см,  
 $DG = 12$  см,  
 $AG = 29$  см,  
 $BC = 26$  см.

7.1

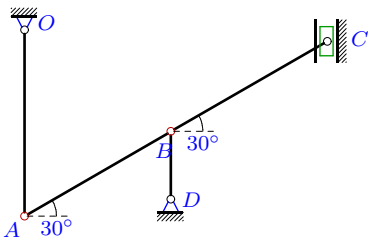
**Задача 7.16**



$\omega_{DB} = 16$  рад/с,  
 $OA = 27$  см,  
 $DB = 12$  см,  
 $AB = 25$  см,  
 $BC = 26$  см.

7.1

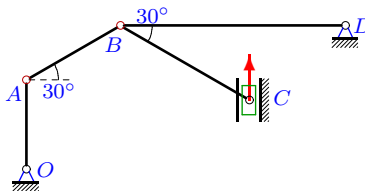
**Задача 7.17**



$\omega_{DB} = 17$  рад/с,  
 $OA = 33$  см,  
 $DB = 12$  см,  
 $AB = 30$  см,  
 $BC = 32$  см.

7.1

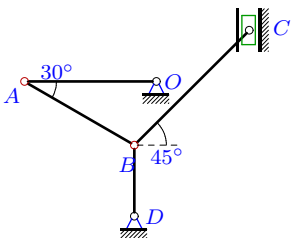
**Задача 7.18**



$v_C = 90$  см/с,  
 $OA = 33$  см,  
 $DB = 83$  см,  
 $AB = 40$  см,  
 $BC = 55$  см.

7.1

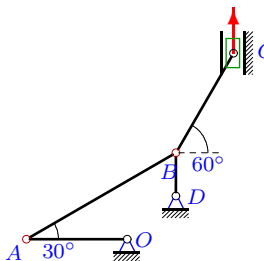
**Задача 7.19**



$\omega_{OA} = 19$  рад/с,  
 $OA = 26$  см,  
 $DB = 14$  см,  
 $AB = 25$  см,  
 $BC = 32$  см.

7.1

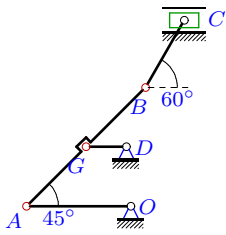
**Задача 7.20**



$v_C = 100$  см/с,  
 $OA = 28$  см,  
 $DB = 12$  см,  
 $AB = 48$  см,  
 $BC = 32$  см.

7.1

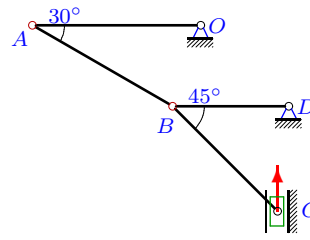
**Задача 7.21**



$\omega_{DG} = 21$  рад/с,  
 $OA = 31$  см,  
 $BG = 25$  см,  
 $DG = 12$  см,  
 $AG = 25$  см,  
 $BC = 23$  см.

7.1

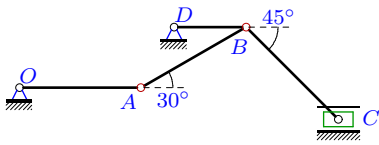
**Задача 7.22**



$v_C = 110$  см/с,  
 $OA = 26$  см,  
 $DB = 18$  см,  
 $AB = 25$  см,  
 $BC = 23$  см.

7.1

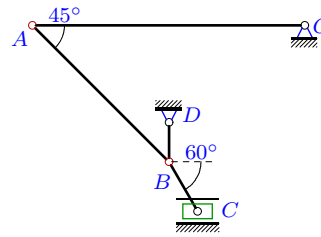
**Задача 7.23**



$\omega_{DB} = 23$  рад/с,  
 $OA = 27$  см,  
 $DB = 16$  см,  
 $AB = 27$  см,  
 $BC = 29$  см.

7.1

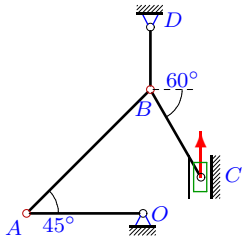
**Задача 7.24**



$\omega_{DB} = 24$  рад/с,  
 $OA = 124$  см,  
 $DB = 18$  см,  
 $AB = 88$  см,  
 $BC = 26$  см.

7.1

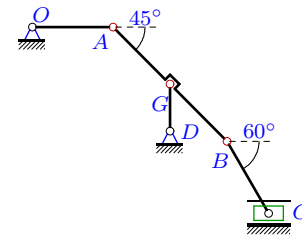
**Задача 7.25**



$v_C = 125$  см/с,  
 $OA = 30$  см,  
 $DB = 16$  см,  
 $AB = 45$  см,  
 $BC = 26$  см.

7.1

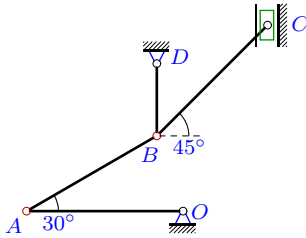
**Задача 7.26**



$\omega_{DG} = 26$  рад/с,  
 $OA = 31$  см,  
 $BG = 31$  см,  
 $DG = 18$  см,  
 $AG = 31$  см,  
 $BC = 32$  см.

7.1

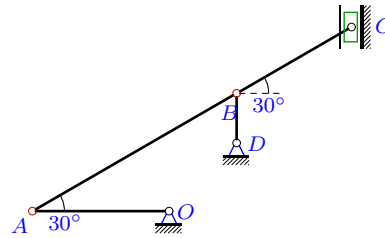
**Задача 7.27**



$\omega_{OA} = 27$  рад/с,  
 $OA = 26$  см,  
 $DB = 12$  см,  
 $AB = 25$  см,  
 $BC = 26$  см.

7.1

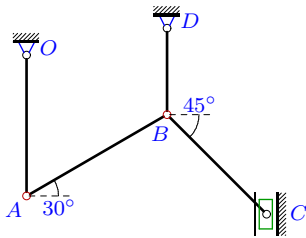
**Задача 7.28**



$\omega_{OA} = 28$  рад/с,  
 $OA = 33$  см,  
 $DB = 12$  см,  
 $AB = 57$  см,  
 $BC = 32$  см.

7.1

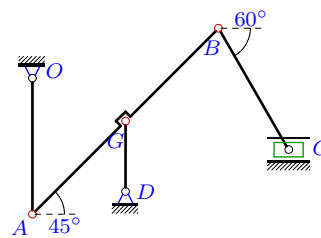
**Задача 7.29**



$\omega_{DB} = 29$  рад/с,  
 $OA = 26$  см,  
 $DB = 16$  см,  
 $AB = 30$  см,  
 $BC = 26$  см.

7.1

**Задача 7.30**



$\omega_{OA} = 30$  рад/с,  
 $OA = 31$  см,  
 $BG = 30$  см,  
 $DG = 16$  см,  
 $AG = 30$  см,  
 $BC = 32$  см.

7.1

**Кинематический анализ механизма (4звена)**

n	$v_A$	$v_B$	$v_C$	$v_G$	$a_A$	$a_B$	$a_C$	$a_G$
1	0.310	0.310	0.537	–	0.310	0.674	3.783	–
2	0.600	0.600	0.346	0.600	1.200	3.912	6.644	2.483
3	0.840	0.485	0.280	–	2.520	7.782	3.781	–
4	1.080	1.080	1.080	1.080	4.320	8.993	6.146	6.599
5	6.000	6.000	3.464	–	30.000	85.811	129.816	–
6	3.949	2.280	2.280	–	14.694	13.680	23.694	–
7	1.260	1.260	0.727	–	10.106	8.820	18.221	–
8	3.741	13.489	10.800	6.480	247.424	147.379	123.750	51.840
9	0.779	0.450	0.450	–	2.526	1.591	0.000	–
10	0.500	0.500	0.500	–	1.515	4.167	0.000	–
11	1.650	1.650	1.650	–	18.150	42.328	48.824	–
12	0.600	0.346	0.600	–	6.864	1.848	0.000	–
13	0.375	0.650	0.650	–	2.735	3.485	0.000	–
14	0.700	0.700	0.700	–	2.464	3.315	0.000	–
15	3.118	4.762	1.800	1.800	177.624	125.010	474.156	27.000
16	3.326	1.920	1.920	–	87.871	30.720	30.720	–
17	2.040	2.040	3.533	–	30.075	34.680	138.720	–
18	0.520	0.900	0.900	–	5.602	1.952	0.000	–
19	4.940	2.852	2.852	–	93.860	107.104	219.977	–
20	3.000	1.732	1.000	–	93.337	72.733	0.000	–
21	2.520	2.520	4.365	2.520	38.362	91.310	191.707	52.920
22	1.100	1.100	1.100	–	5.614	9.507	0.000	–
23	3.680	3.680	3.680	–	77.993	84.640	216.722	–
24	4.320	4.320	4.320	–	60.644	103.680	179.579	–
25	2.165	2.165	1.250	–	142.813	103.072	0.000	–
26	4.680	10.465	1.254	4.680	398.483	164.730	734.653	121.680
27	7.020	4.053	4.053	–	189.540	236.603	234.792	–
28	9.240	5.335	9.240	–	258.720	288.931	662.791	–
29	4.640	4.640	4.640	–	88.032	134.560	368.771	–
30	9.300	9.300	9.300	9.300	279.000	2129.946	3994.931	981.779

№	$\omega_{OA}$	$\omega_{DB}$	$\omega_{DG}$	$\omega_{AB}$	$\omega_{BC}$	$\varepsilon_{AB}$	$\varepsilon_{BC}$
1	1.000	1.938	-	0.974	-2.138	0.938	-10.031
2	2.000	-	3.750	0.000	-2.665	4.950	13.426
3	3.000	4.041	-	-3.464	2.154	15.011	-36.126
4	4.000	-	6.000	0.000	0.000	8.314	-46.995
5	5.000	14.286	-	9.983	26.647	42.956	-428.064
6	3.404	6.000	-	3.403	0.000	-0.008	-105.231
7	-4.500	7.000	-	0.000	-5.596	41.829	18.079
8	13.362	-	8.000	-18.706	18.783	346.331	-899.725
9	0.722	2.500	-	1.452	0.000	5.464	-6.119
10	-1.515	-4.167	-	0.000	0.000	-10.606	18.116
11	11.000	-11.786	-	0.000	0.000	-212.678	-77.430
12	-1.818	2.474	-	2.099	2.665	24.166	0.293
13	1.340	4.643	-	1.876	0.000	4.449	-12.016
14	-2.692	4.375	-	0.000	3.094	-19.041	3.964
15	10.751	-	15.000	-12.414	23.982	-498.066	1922.592
16	-12.317	16.000	-	-15.360	0.000	-80.962	-167.095
17	-6.182	17.000	-	0.000	-12.750	-182.023	-281.567
18	-1.575	-1.084	-	2.598	0.000	11.139	-3.549
19	19.000	-20.372	-	22.817	12.605	-568.944	-556.508
20	-10.714	-14.434	-	-7.217	6.250	-240.871	223.908
21	8.129	-	21.000	0.000	21.913	-183.479	1113.741
22	-4.231	-6.111	-	0.000	0.000	16.547	-41.333
23	13.630	23.000	-	0.000	-17.946	255.429	-322.055
24	3.484	24.000	-	6.943	0.000	24.012	-797.538
25	7.217	-13.532	-	6.804	9.615	-307.755	-385.498
26	15.097	-	26.000	-21.350	29.250	778.142	-2411.937
27	27.000	-33.775	-	32.424	-22.045	1239.245	-1535.684
28	28.000	44.456	-	18.718	-33.342	-278.147	-894.031
29	17.846	29.000	-	0.000	-25.238	199.201	636.970
30	30.000	-	-58.125	0.000	0.000	-3863.455	8500.781