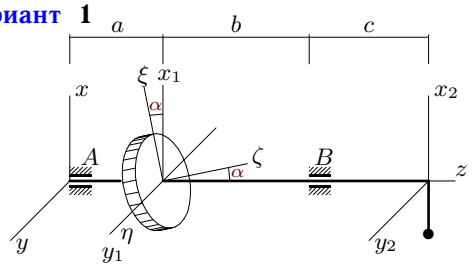
Динамические реакции вала

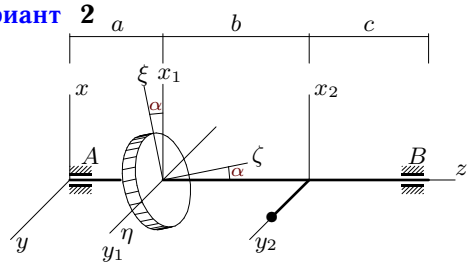
Кирсанов М.Н. **Решебник. Теоретическая механика** с. 272.

Вариант 1



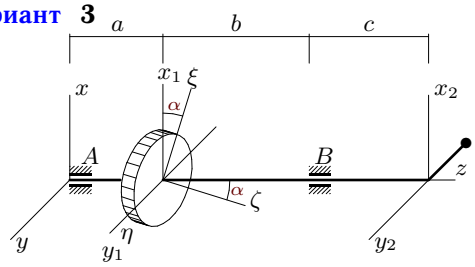
$a = 25$ см, $b = 55$ см,
$c = 40$ см, $R = 30$ см,
$m_1 = 55$ кг, $m_2 = 14$ кг,
$\alpha = 0.14$ рад, $L = 15$ см,
$M_z = 0.6$ Нм, $t = 5$ с.

Вариант 2



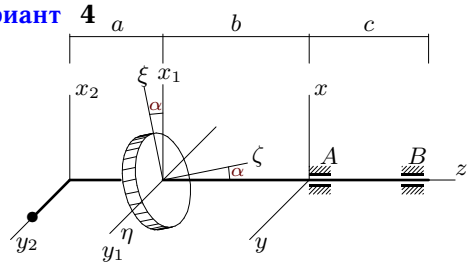
$a = 30$ см, $b = 50$ см,
$c = 40$ см, $R = 35$ см,
$m_1 = 55$ кг, $m_2 = 10$ кг,
$\alpha = 0.13$ рад, $L = 20$ см,
$M_z = 1.2$ Нм, $t = 4$ с.

Вариант 3



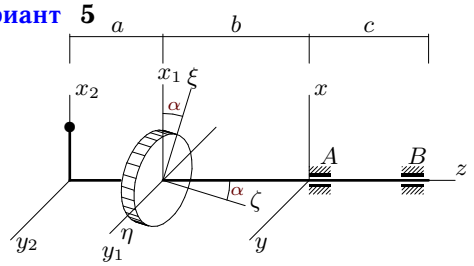
$a = 35$ см, $b = 65$ см,
$c = 50$ см, $R = 45$ см,
$m_1 = 80$ кг, $m_2 = 18$ кг,
$\alpha = 0.16$ рад, $L = 25$ см,
$M_z = 1.4$ Нм, $t = 6$ с.

Вариант 4



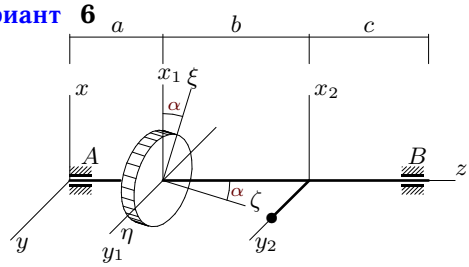
$a = 50$ см, $b = 60$ см,
$c = 55$ см, $R = 55$ см,
$m_1 = 30$ кг, $m_2 = 10$ кг,
$\alpha = 0.08$ рад, $L = 40$ см,
$M_z = 1.4$ Нм, $t = 4$ с.

Вариант 5



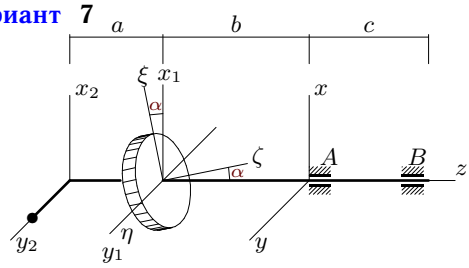
$a = 35$ см, $b = 45$ см,
$c = 40$ см, $R = 45$ см,
$m_1 = 60$ кг, $m_2 = 6$ кг,
$\alpha = 0.09$ рад, $L = 25$ см,
$M_z = 3$ Нм, $t = 3$ с.

Вариант 6



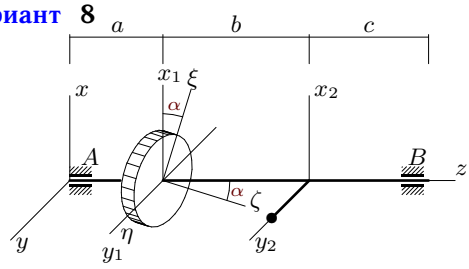
$a = 25$ см, $b = 45$ см,
$c = 35$ см, $R = 35$ см,
$m_1 = 60$ кг, $m_2 = 10$ кг,
$\alpha = 0.1$ рад, $L = 15$ см,
$M_z = 1$ Нм, $t = 4$ с.

Вариант 7



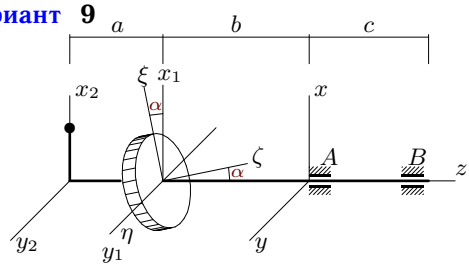
$a = 35$ см, $b = 45$ см,
$c = 40$ см, $R = 40$ см,
$m_1 = 55$ кг, $m_2 = 10$ кг,
$\alpha = 0.13$ рад, $L = 25$ см,
$M_z = 1.6$ Нм, $t = 4$ с.

Вариант 8



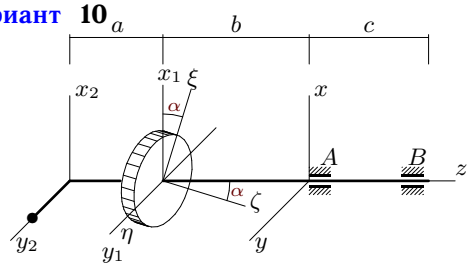
$a = 40$ см, $b = 60$ см,
$c = 50$ см, $R = 50$ см,
$m_1 = 90$ кг, $m_2 = 10$ кг,
$\alpha = 0.16$ рад, $L = 30$ см,
$M_z = 4.6$ Нм, $t = 4$ с.

Вариант 9



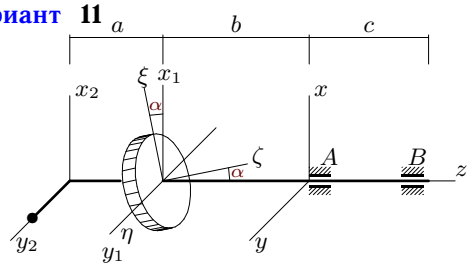
$a = 35$ см, $b = 45$ см,
$c = 40$ см, $R = 40$ см,
$m_1 = 55$ кг, $m_2 = 6$ кг,
$\alpha = 0.12$ рад, $L = 25$ см,
$M_z = 2.7$ Нм, $t = 3$ с.

Вариант 10



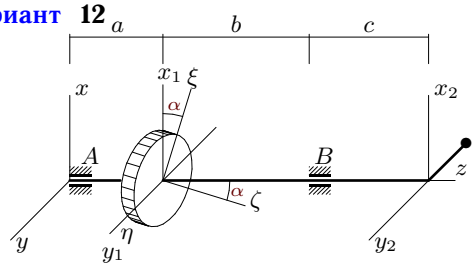
$a = 45$ см, $b = 55$ см,
$c = 50$ см, $R = 55$ см,
$m_1 = 70$ кг, $m_2 = 10$ кг,
$\alpha = 0.12$ рад, $L = 35$ см,
$M_z = 3.5$ Нм, $t = 4$ с.

Вариант 11



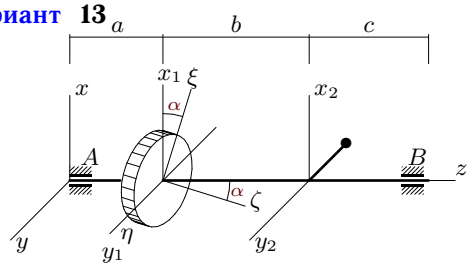
$a = 30$ см, $b = 40$ см,
$c = 35$ см, $R = 35$ см,
$m_1 = 65$ кг, $m_2 = 10$ кг,
$\alpha = 0.15$ рад, $L = 20$ см,
$M_z = 1.6$ Нм, $t = 4$ с.

Вариант 12



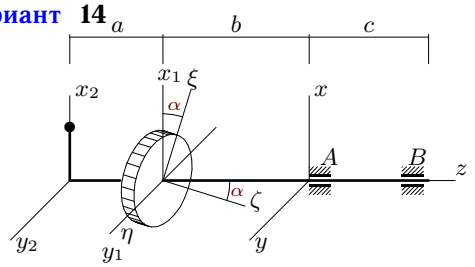
$a = 20$ см, $b = 50$ см,
$c = 35$ см, $R = 30$ см,
$m_1 = 85$ кг, $m_2 = 18$ кг,
$\alpha = 0.17$ рад, $L = 10$ см,
$M_z = 0.6$ Нм, $t = 6$ с.

Вариант 13



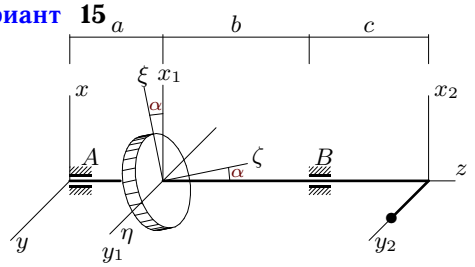
$a = 35$ см, $b = 55$ см,
$c = 45$ см, $R = 45$ см,
$m_1 = 65$ кг, $m_2 = 18$ кг,
$\alpha = 0.13$ рад, $L = 25$ см,
$M_z = 1$ Нм, $t = 6$ с.

Вариант 14



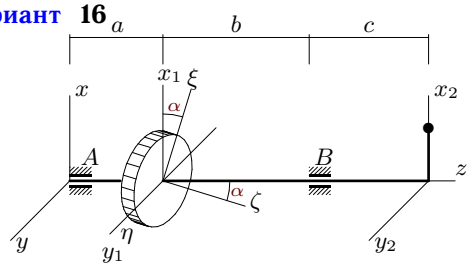
$a = 40$ см, $b = 50$ см,
$c = 45$ см, $R = 50$ см,
$m_1 = 50$ кг, $m_2 = 6$ кг,
$\alpha = 0.07$ рад, $L = 30$ см,
$M_z = 2.7$ Нм, $t = 3$ с.

Вариант 15



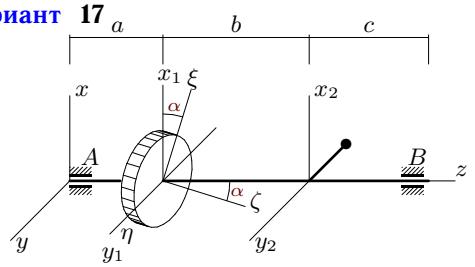
$a = 25$ см, $b = 55$ см,
$c = 40$ см, $R = 30$ см,
$m_1 = 40$ кг, $m_2 = 10$ кг,
$\alpha = 0.1$ рад, $L = 15$ см,
$M_z = 0.5$ Нм, $t = 4$ с.

Вариант 16



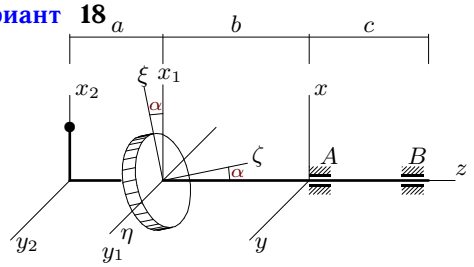
$a = 25$ см, $b = 55$ см,
$c = 40$ см, $R = 35$ см,
$m_1 = 70$ кг, $m_2 = 6$ кг,
$\alpha = 0.11$ рад, $L = 15$ см,
$M_z = 2.4$ Нм, $t = 3$ с.

Вариант 17



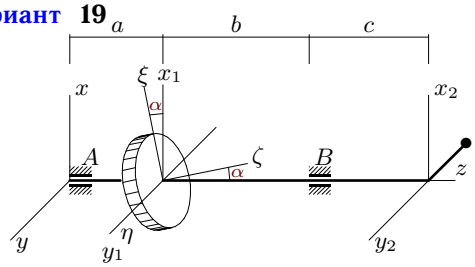
$a = 25$ см, $b = 45$ см,
$c = 35$ см, $R = 35$ см,
$m_1 = 70$ кг, $m_2 = 18$ кг,
$\alpha = 0.14$ рад, $L = 15$ см,
$M_z = 0.6$ Нм, $t = 6$ с.

Вариант 18



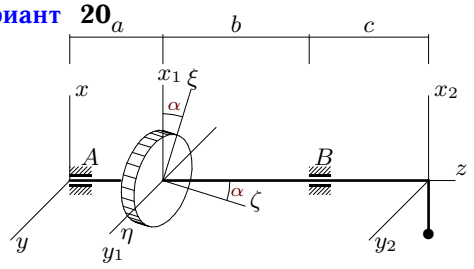
$a = 40$ см, $b = 50$ см,
$c = 45$ см, $R = 45$ см,
$m_1 = 45$ кг, $m_2 = 6$ кг,
$\alpha = 0.1$ рад, $L = 30$ см,
$M_z = 2.5$ Нм, $t = 3$ с.

Вариант 19



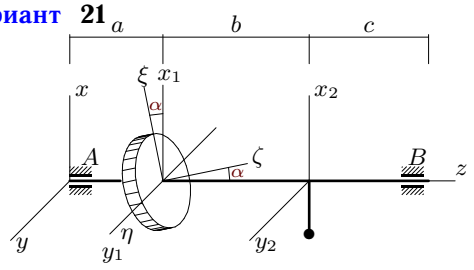
$a = 30$ см, $b = 60$ см,
$c = 45$ см, $R = 35$ см,
$m_1 = 50$ кг, $m_2 = 18$ кг,
$\alpha = 0.14$ рад, $L = 20$ см,
$M_z = 0.5$ Нм, $t = 6$ с.

Вариант 20



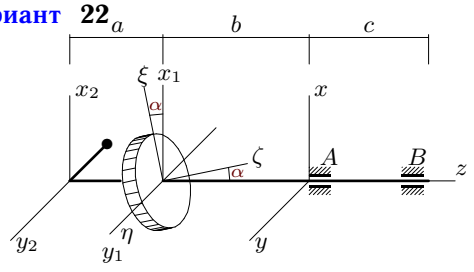
$a = 25$ см, $b = 55$ см,
$c = 40$ см, $R = 35$ см,
$m_1 = 50$ кг, $m_2 = 14$ кг,
$\alpha = 0.09$ рад, $L = 15$ см,
$M_z = 0.5$ Нм, $t = 5$ с.

Вариант 21



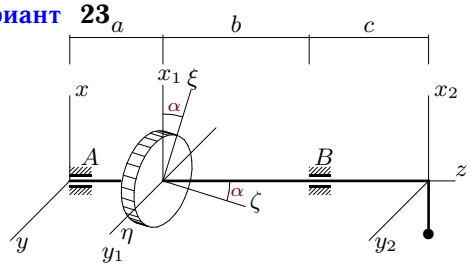
$a = 50$ см, $b = 70$ см,
$c = 60$ см, $R = 55$ см,
$m_1 = 70$ кг, $m_2 = 14$ кг,
$\alpha = 0.17$ рад, $L = 40$ см,
$M_z = 3.1$ Нм, $t = 5$ с.

Вариант 22



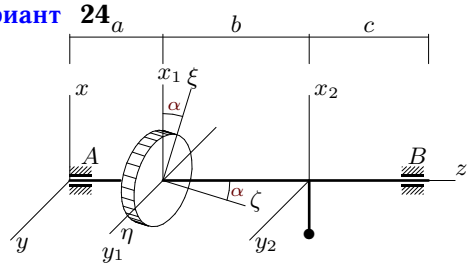
$a = 50$ см, $b = 60$ см,
$c = 55$ см, $R = 55$ см,
$m_1 = 45$ кг, $m_2 = 18$ кг,
$\alpha = 0.13$ рад, $L = 40$ см,
$M_z = 1.2$ Нм, $t = 6$ с.

Вариант 23



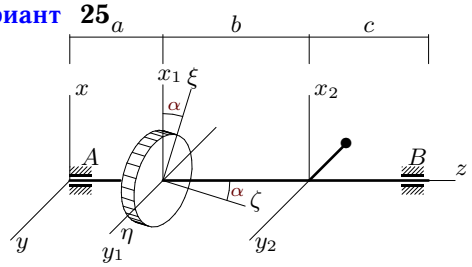
$a = 45$ см, $b = 75$ см,
$c = 60$ см, $R = 55$ см,
$m_1 = 80$ кг, $m_2 = 14$ кг,
$\alpha = 0.15$ рад, $L = 35$ см,
$M_z = 3$ Нм, $t = 5$ с.

Вариант 24



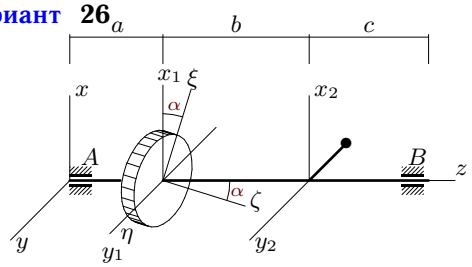
$a = 50$ см, $b = 70$ см,
$c = 60$ см, $R = 60$ см,
$m_1 = 65$ кг, $m_2 = 14$ кг,
$\alpha = 0.12$ рад, $L = 40$ см,
$M_z = 2.5$ Нм, $t = 5$ с.

Вариант 25



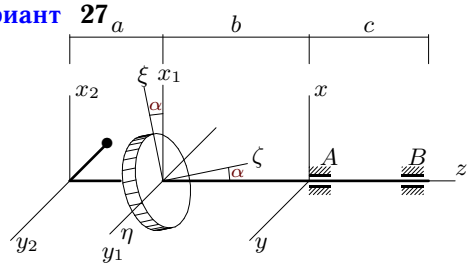
$a = 45$ см, $b = 65$ см,
$c = 55$ см, $R = 55$ см,
$m_1 = 60$ кг, $m_2 = 18$ кг,
$\alpha = 0.12$ рад, $L = 35$ см,
$M_z = 1.3$ Нм, $t = 6$ с.

Вариант 26



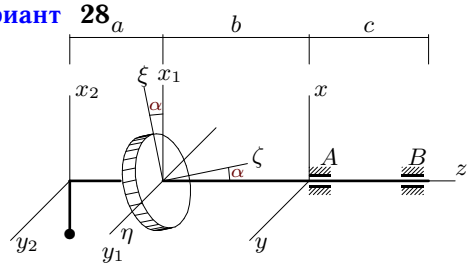
$a = 40$ см, $b = 60$ см,
$c = 50$ см, $R = 50$ см,
$m_1 = 75$ кг, $m_2 = 18$ кг,
$\alpha = 0.15$ рад, $L = 30$ см,
$M_z = 1.6$ Нм, $t = 6$ с.

Вариант 27



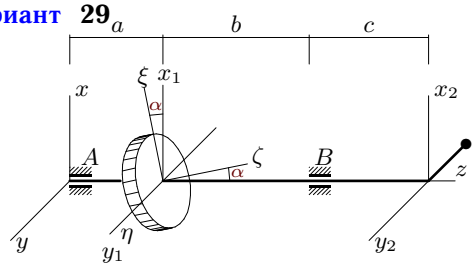
$a = 55$ см, $b = 65$ см,
$c = 60$ см, $R = 60$ см,
$m_1 = 25$ кг, $m_2 = 18$ кг,
$\alpha = 0.09$ рад, $L = 45$ см,
$M_z = 0.7$ Нм, $t = 6$ с.

Вариант 28



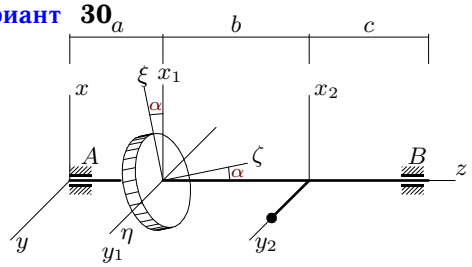
$a = 35$ см, $b = 45$ см,
$c = 40$ см, $R = 40$ см,
$m_1 = 35$ кг, $m_2 = 14$ кг,
$\alpha = 0.1$ рад, $L = 25$ см,
$M_z = 0.6$ Нм, $t = 5$ с.

Вариант 29



$a = 40$ см, $b = 70$ см,
$c = 55$ см, $R = 45$ см,
$m_1 = 50$ кг, $m_2 = 18$ кг,
$\alpha = 0.14$ рад, $L = 30$ см,
$M_z = 0.9$ Нм, $t = 6$ с.

Вариант 30



$a = 35$ см, $b = 55$ см,
$c = 45$ см, $R = 40$ см,
$m_1 = 70$ кг, $m_2 = 10$ кг,
$\alpha = 0.16$ рад, $L = 25$ см,
$M_z = 2.3$ Нм, $t = 4$ с.

Ответы

	ε	ω	x_c	y_c	z_c	X_A	Y_A	X_B	Y_B
1	0.215	1.075	-3.043	0.000	44.275	-1.464	0.272	3.892	-0.724
2	0.318	1.274	0.000	3.077	37.692	-0.508	-1.023	-0.129	-2.221
3	0.152	0.911	0.000	-4.592	56.122	0.196	-1.964	0.487	5.695
4	0.228	0.912	0.000	10.000	-72.500	-3.012	-9.915	2.100	6.585
5	0.465	1.395	2.273	0.000	-48.182	-7.431	1.775	4.510	-1.077
6	0.256	1.026	0.000	2.143	31.429	0.056	-0.571	-0.440	-1.007
7	0.318	1.274	0.000	3.846	-50.385	-3.548	-11.938	2.752	7.883
8	0.379	1.514	0.000	3.000	46.000	0.997	-2.521	-2.133	-4.360
9	0.565	1.696	2.459	0.000	-48.443	-14.848	2.918	10.532	-2.070
10	0.296	1.185	0.000	4.375	-60.625	-1.326	-15.125	0.289	10.209
11	0.365	1.461	0.000	2.667	-44.000	-4.012	-12.492	3.281	8.224
12	0.150	0.899	0.000	-1.748	34.854	0.240	-0.797	0.029	2.251
13	0.130	0.779	0.000	-5.422	46.928	0.387	0.868	0.197	1.860
14	0.398	1.193	3.214	0.000	-54.286	-6.993	1.954	4.431	-1.238
15	0.247	0.988	0.000	3.000	44.000	0.075	0.759	-0.446	-2.223
16	0.543	1.628	1.184	0.000	32.500	1.974	-0.404	-4.359	0.893
17	0.128	0.767	0.000	-3.068	34.205	0.283	0.493	0.062	1.096
18	0.491	1.472	3.529	0.000	-54.706	-12.792	2.897	8.893	-2.014
19	0.132	0.793	0.000	-5.294	57.794	-0.388	-1.101	0.864	3.365
20	0.148	0.740	-3.281	0.000	45.781	-0.481	0.130	1.631	-0.441
21	0.242	1.208	-6.667	0.000	61.667	1.996	-0.330	6.181	-1.023
22	0.124	0.743	0.000	-11.429	-74.286	2.232	12.034	-1.340	-8.056
23	0.217	1.086	-5.213	0.000	65.106	-1.997	0.368	7.773	-1.432
24	0.179	0.897	-7.089	0.000	62.405	1.815	-0.405	2.688	-0.600
25	0.115	0.691	0.000	-8.077	60.000	0.400	0.966	0.326	2.046
26	0.146	0.873	0.000	-5.806	51.613	0.619	1.304	0.167	2.813
27	0.086	0.516	0.000	-18.837	-88.023	1.999	6.490	-1.303	-4.337
28	0.163	0.816	-7.143	0.000	-55.000	6.764	-1.657	-4.431	1.086
29	0.135	0.808	0.000	-7.941	73.088	-0.574	-1.720	1.301	5.246
30	0.369	1.478	0.000	3.125	41.875	-1.033	-1.698	0.109	-3.763