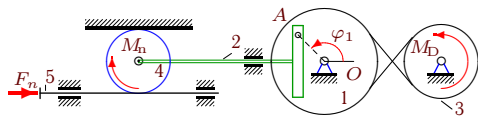


Получить уравнение движения кулисного механизма. Найти значение углового ускорения $\ddot{\varphi}_1$ при $t = 0$.

Вариант 1



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 11\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 45\text{Нс/м}, \mu = 12\text{Нмс},$$

$$I_1 = 12\text{кгм}^2, m_2 = 16\text{кг},$$

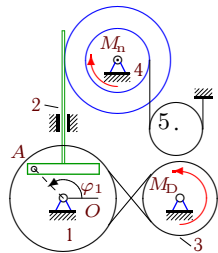
$$m_3 = 34\text{кг}, m_4 = 26\text{кг},$$

$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 12\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 2



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 11\text{Нм}, k = 11\text{Нмс},$$

$$\mu = 13\text{Нмс}, I_1 = 12\text{кгм}^2,$$

$$m_2 = 16\text{кг}, m_3 = 34\text{кг},$$

$$m_4 = 26\text{кг}, m_5 = 6\text{кг},$$

$$R_1 = 34\text{см}, r_1 = 23\text{см},$$

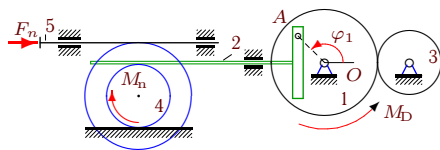
$$R_3 = 24\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 15\text{см},$$

$$r_5 = 12\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.1\frac{1}{\text{с}}.$$

Вариант 3



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 12\text{Нм}, k = 12\text{Нмс},$$

$$\nu = 30\text{Нс/м}, \mu = 13\text{Нмс},$$

$$I_1 = 15\text{кгм}^2, m_2 = 16\text{кг},$$

$$m_3 = 34\text{кг}, m_4 = 26\text{кг},$$

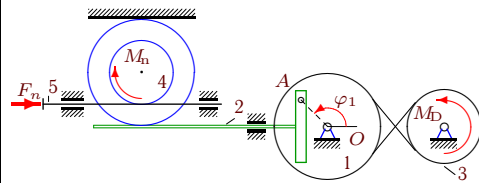
$$R_1 = 35\text{см}, r_1 = 24\text{см},$$

$$R_3 = 25\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 15\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.2\frac{1}{\text{с}}.$$

Вариант 4



$$M_{D_z} = M_0 - k\omega_{3_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 10\text{Нм}, k = 11\text{Нмс},$$

$$\nu = 35\text{Нс/м}, \mu = 14\text{Нмс},$$

$$I_1 = 9\text{кгм}^2, m_2 = 15\text{кг},$$

$$m_3 = 33\text{кг}, m_4 = 25\text{кг},$$

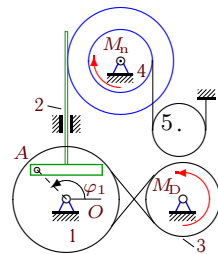
$$R_1 = 34\text{см}, r_1 = 23\text{см},$$

$$R_3 = 24\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 14\text{см},$$

$$\varphi_{1,0} = 1.2, \omega_{1_z,0} = 0.1\frac{1}{\text{с}}.$$

Вариант 5



$$M_{D_z} = M_0 - k\omega_{3_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$M_0 = 9\text{Нм}, k = 14\text{Нмс},$$

$$\mu = 15\text{Нмс}, I_1 = 6\text{кгм}^2,$$

$$m_2 = 14\text{кг}, m_3 = 32\text{кг},$$

$$m_4 = 24\text{кг}, m_5 = 4\text{кг},$$

$$R_1 = 37\text{см}, r_1 = 26\text{см},$$

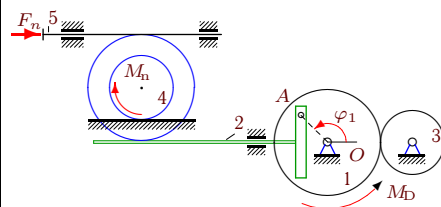
$$R_3 = 27\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$r_5 = 12\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1_z,0} = 0.4\frac{1}{\text{с}}.$$

Вариант 6



$$M_{D_z} = M_0 - k\omega_{1_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 12\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 30\text{Нс/м}, \mu = 13\text{Нмс},$$

$$I_1 = 15\text{кгм}^2, m_2 = 16\text{кг},$$

$$m_3 = 34\text{кг}, m_4 = 26\text{кг},$$

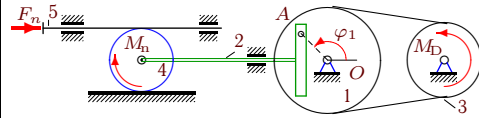
$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 15\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1_z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 7



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 11\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 40\text{Нс/м}, \mu = 12\text{Нмс},$$

$$I_1 = 11\text{кгм}^2, m_2 = 17\text{кг},$$

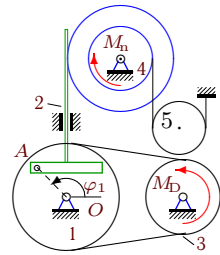
$$m_3 = 35\text{кг}, m_4 = 27\text{кг},$$

$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 12\text{см},$$

$$\varphi_{1,0} = 1.4, \omega_{1z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 8



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 11\text{Нм}, k = 12\text{Нмс},$$

$$\mu = 12\text{Нмс}, I_1 = 11\text{кгм}^2,$$

$$m_2 = 17\text{кг}, m_3 = 35\text{кг},$$

$$m_4 = 27\text{кг}, m_5 = 6\text{кг},$$

$$R_1 = 35\text{см}, r_1 = 24\text{см},$$

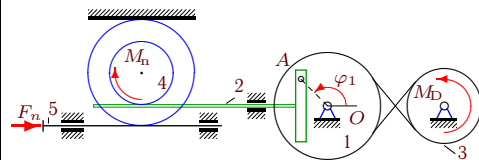
$$R_3 = 25\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 16\text{см},$$

$$r_5 = 11\text{см},$$

$$\varphi_{1,0} = 1.4, \omega_{1z,0} = 0.2\frac{1}{\text{с}}.$$

Вариант 9



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 9\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 30\text{Нс/м}, \mu = 15\text{Нмс},$$

$$I_1 = 6\text{кгм}^2, m_2 = 14\text{кг},$$

$$m_3 = 32\text{кг}, m_4 = 24\text{кг},$$

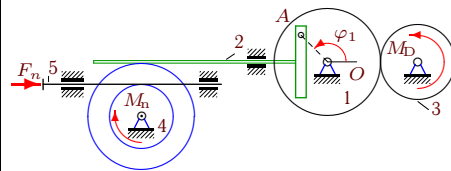
$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 10



$$M_{D_z} = M_0 - k\omega_{3_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 9\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 30\text{Нс/м}, \mu = 13\text{Нмс},$$

$$I_1 = 6\text{кгм}^2, m_2 = 16\text{кг},$$

$$m_3 = 34\text{кг}, m_4 = 26\text{кг},$$

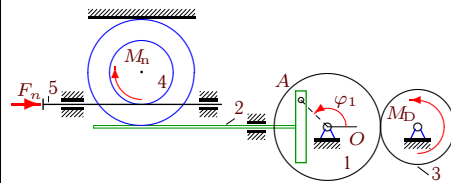
$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 15\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1_z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 11



$$M_{D_z} = M_0 - k\omega_{3_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 7\text{Нм}, k = 14\text{Нмс},$$

$$\nu = 40\text{Нс/м}, \mu = 15\text{Нмс},$$

$$I_1 = 4\text{кгм}^2, m_2 = 14\text{кг},$$

$$m_3 = 32\text{кг}, m_4 = 24\text{кг},$$

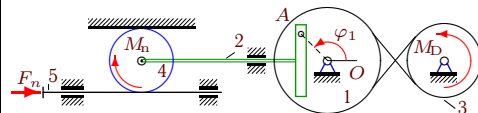
$$R_1 = 37\text{см}, r_1 = 26\text{см},$$

$$R_3 = 27\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1_z,0} = 0.4\frac{1}{\text{с}}.$$

Вариант 12



$$M_{D_z} = M_0 - k\omega_{3_z},$$

$$M_{n_z} = -\mu\omega_{4_z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 12\text{Нм}, k = 15\text{Нмс},$$

$$\nu = 40\text{Нс/м}, \mu = 11\text{Нмс},$$

$$I_1 = 15\text{кгм}^2, m_2 = 17\text{кг},$$

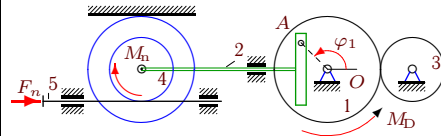
$$m_3 = 35\text{кг}, m_4 = 27\text{кг},$$

$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 12\text{см},$$

$$\varphi_{1,0} = 1.4, \omega_{1_z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 13



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 12 \text{ Нм}, k = 13 \text{ Нмс},$$

$$\nu = 30 \text{ Нс/м}, \mu = 12 \text{ Нмс},$$

$$I_1 = 15 \text{ кгм}^2, m_2 = 16 \text{ кг},$$

$$m_3 = 34 \text{ кг}, m_4 = 26 \text{ кг},$$

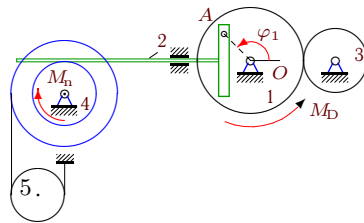
$$R_1 = 36 \text{ см}, r_1 = 25 \text{ см},$$

$$R_3 = 26 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 15 \text{ см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.3 \frac{1}{\text{с}}.$$

Вариант 14



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 12 \text{ Нм}, k = 14 \text{ Нмс},$$

$$\mu = 12 \text{ Нмс}, I_1 = 15 \text{ кгм}^2,$$

$$m_2 = 16 \text{ кг}, m_3 = 34 \text{ кг},$$

$$m_4 = 26 \text{ кг}, m_5 = 6 \text{ кг},$$

$$R_1 = 37 \text{ см}, r_1 = 26 \text{ см},$$

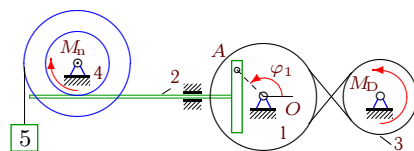
$$R_3 = 27 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 15 \text{ см},$$

$$r_5 = 13 \text{ см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.4 \frac{1}{\text{с}}.$$

Вариант 15



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 12 \text{ Нм}, k = 14 \text{ Нмс},$$

$$\mu = 11 \text{ Нмс}, I_1 = 15 \text{ кгм}^2,$$

$$m_2 = 17 \text{ кг}, m_3 = 35 \text{ кг},$$

$$m_4 = 27 \text{ кг}, m_5 = 6 \text{ кг},$$

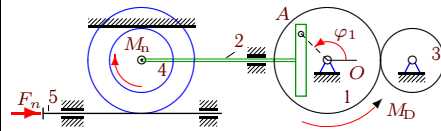
$$R_1 = 37 \text{ см}, r_1 = 26 \text{ см},$$

$$R_3 = 27 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 16 \text{ см},$$

$$\varphi_{1,0} = 1.4, \omega_{1z,0} = 0.4 \frac{1}{\text{с}}.$$

Вариант 19



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{n_x} = -\nu v_{5_x},$$

$$M_0 = 13 \text{ Нм}, k = 13 \text{ Нмс},$$

$$\nu = 25 \text{ Нс/м}, \mu = 11 \text{ Нмс},$$

$$I_1 = 19 \text{ кгм}^2, m_2 = 17 \text{ кг},$$

$$m_3 = 35 \text{ кг}, m_4 = 27 \text{ кг},$$

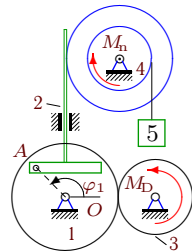
$$R_1 = 36 \text{ см}, r_1 = 25 \text{ см},$$

$$R_3 = 26 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 16 \text{ см},$$

$$\varphi_{1,0} = 1.4, \omega_{1z,0} = 0.3 \frac{1}{\text{с}}.$$

Вариант 20



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 7 \text{ Нм}, k = 12 \text{ Нмс},$$

$$\mu = 15 \text{ Нмс}, I_1 = 4 \text{ кгм}^2,$$

$$m_2 = 14 \text{ кг}, m_3 = 32 \text{ кг},$$

$$m_4 = 24 \text{ кг}, m_5 = 2 \text{ кг},$$

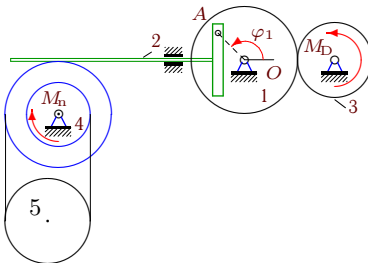
$$R_1 = 35 \text{ см}, r_1 = 24 \text{ см},$$

$$R_3 = 25 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 13 \text{ см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.2 \frac{1}{\text{с}}.$$

Вариант 21



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 7 \text{ Нм}, k = 13 \text{ Нмс},$$

$$\mu = 15 \text{ Нмс}, I_1 = 4 \text{ кгм}^2,$$

$$m_2 = 14 \text{ кг}, m_3 = 32 \text{ кг},$$

$$m_4 = 24 \text{ кг}, m_5 = 20 \text{ кг},$$

$$R_1 = 36 \text{ см}, r_1 = 25 \text{ см},$$

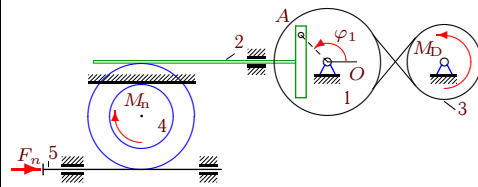
$$R_3 = 26 \text{ см}, R_4 = 20 \text{ см},$$

$$r_4 = 12 \text{ см}, i_4 = 13 \text{ см},$$

$$r_5 = 16 \text{ см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.3 \frac{1}{\text{с}}.$$

Вариант 22



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 9\text{Нм}, k = 11\text{Нмс},$$

$$\nu = 40\text{Нс/м}, \mu = 15\text{Нмс},$$

$$I_1 = 6\text{кгм}^2, m_2 = 14\text{кг},$$

$$m_3 = 32\text{кг}, m_4 = 24\text{кг},$$

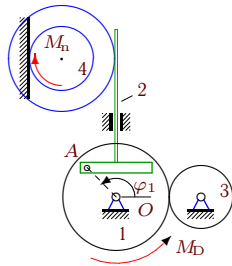
$$R_1 = 34\text{см}, r_1 = 23\text{см},$$

$$R_3 = 24\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.1\frac{1}{\text{с}}.$$

Вариант 23



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 10\text{Нм}, k = 15\text{Нмс},$$

$$\mu = 15\text{Нмс},$$

$$I_1 = 7\text{кгм}^2, m_2 = 14\text{кг},$$

$$m_3 = 32\text{кг}, m_4 = 24\text{кг},$$

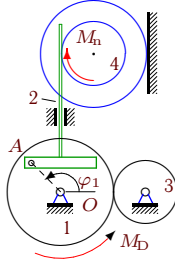
$$R_1 = 38\text{см}, r_1 = 27\text{см},$$

$$R_3 = 28\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.5\frac{1}{\text{с}}.$$

Вариант 24



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 14\text{Нм}, k = 13\text{Нмс},$$

$$\mu = 10\text{Нмс},$$

$$I_1 = 23\text{кгм}^2, m_2 = 18\text{кг},$$

$$m_3 = 36\text{кг}, m_4 = 28\text{кг},$$

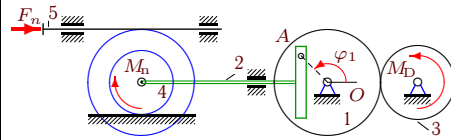
$$R_1 = 36\text{см}, r_1 = 25\text{см},$$

$$R_3 = 26\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 17\text{см},$$

$$\varphi_{1,0} = 1.5, \omega_{1z,0} = 0.3\frac{1}{\text{с}}.$$

Вариант 25



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 8\text{Нм}, k = 14\text{Нмс},$$

$$\nu = 35\text{Нс/м}, \mu = 14\text{Нмс},$$

$$I_1 = 5\text{кгм}^2, m_2 = 15\text{кг},$$

$$m_3 = 33\text{кг}, m_4 = 25\text{кг},$$

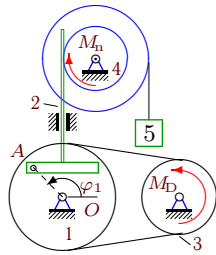
$$R_1 = 37\text{см}, r_1 = 26\text{см},$$

$$R_3 = 27\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 14\text{см},$$

$$\varphi_{1,0} = 1.2, \omega_{1z,0} = 0.4\frac{1}{\text{с}}.$$

Вариант 26



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 8\text{Нм}, k = 13\text{Нмс},$$

$$\mu = 14\text{Нмс}, I_1 = 5\text{кгм}^2,$$

$$m_2 = 14\text{кг}, m_3 = 32\text{кг},$$

$$m_4 = 24\text{кг}, m_5 = 2\text{кг},$$

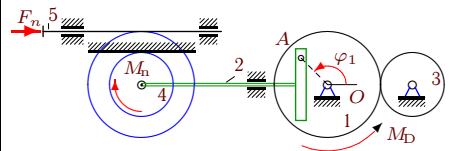
$$R_1 = 36\text{см}, r_1 = 25\text{см},$$

$$R_3 = 26\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 13\text{см},$$

$$\varphi_{1,0} = 1.1, \omega_{1z,0} = 0.3\frac{1}{\text{с}}.$$

Вариант 27



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 14\text{Нм}, k = 14\text{Нмс},$$

$$\nu = 8\text{Нс/м}, \mu = 11\text{Нмс},$$

$$I_1 = 23\text{кгм}^2, m_2 = 18\text{кг},$$

$$m_3 = 36\text{кг}, m_4 = 28\text{кг},$$

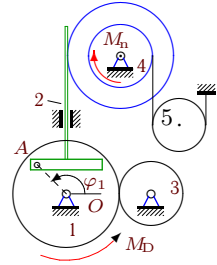
$$R_1 = 37\text{см}, r_1 = 26\text{см},$$

$$R_3 = 27\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 17\text{см},$$

$$\varphi_{1,0} = 1.5, \omega_{1z,0} = 0.4\frac{1}{\text{с}}.$$

Вариант 28



$$M_{Dz} = M_0 - k\omega_{1z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$M_0 = 13\text{Нм}, k = 12\text{Нмс},$$

$$\mu = 12\text{Нмс}, I_1 = 19\text{кгм}^2,$$

$$m_2 = 17\text{кг}, m_3 = 35\text{кг},$$

$$m_4 = 27\text{кг}, m_5 = 8\text{кг},$$

$$R_1 = 35\text{см}, r_1 = 24\text{см},$$

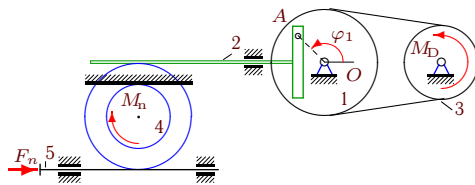
$$R_3 = 25\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 16\text{см},$$

$$r_5 = 13\text{см},$$

$$\varphi_{1,0} = 1.4, \omega_{1z,0} = 0.2\frac{1}{\text{с}}.$$

Вариант 29



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 10\text{Нм}, k = 13\text{Нмс},$$

$$\nu = 30\text{Нс/м}, \mu = 13\text{Нмс},$$

$$I_1 = 9\text{кгм}^2, m_2 = 16\text{кг},$$

$$m_3 = 34\text{кг}, m_4 = 26\text{кг},$$

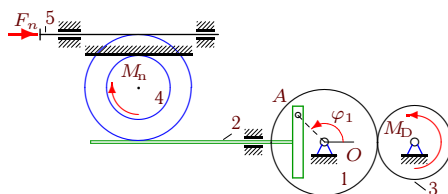
$$R_1 = 36\text{см}, r_1 = 25\text{см},$$

$$R_3 = 26\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 15\text{см},$$

$$\varphi_{1,0} = 1.3, \omega_{1z,0} = 0.3\frac{1}{\text{с}}.$$

Вариант 30



$$M_{Dz} = M_0 - k\omega_{3z},$$

$$M_{nz} = -\mu\omega_{4z},$$

$$F_{nx} = -\nu v_{5x},$$

$$M_0 = 11\text{Нм}, k = 11\text{Нмс},$$

$$\nu = 8\text{Нс/м}, \mu = 11\text{Нмс},$$

$$I_1 = 8\text{кгм}^2, m_2 = 18\text{кг},$$

$$m_3 = 36\text{кг}, m_4 = 28\text{кг},$$

$$R_1 = 34\text{см}, r_1 = 23\text{см},$$

$$R_3 = 24\text{см}, R_4 = 20\text{см},$$

$$r_4 = 12\text{см}, i_4 = 17\text{см},$$

$$\varphi_{1,0} = 1.5, \omega_{1z,0} = 0.1\frac{1}{\text{с}}.$$

Ответы

$$T = (\dot{\varphi}^2/2)(A + B \sin^2 \varphi)$$

	<i>A</i>	<i>B</i>	<i>Q</i>	ε
1	14.455	4.010	-63.035	-3.482
2	13.965	1.663	-26.485	-1.880
3	17.082	1.881	6.616	0.350
4	10.907	1.286	-16.879	-1.404
5	8.190	1.668	-39.745	-4.645
6	17.455	12.095	-80.485	-2.833
7	13.527	4.192	-34.046	-1.945
8	13.144	2.021	4.514	0.343
9	8.310	1.993	-31.626	-3.217
10	8.455	1.907	-29.427	-2.890
11	6.190	1.523	-22.672	-3.077
12	17.527	4.192	-62.802	-2.916
13	17.203	3.539	1.541	0.071
14	17.327	4.438	-0.389	-0.027
15	17.396	5.521	-72.154	-3.177
16	11.203	6.039	23.371	1.382
17	20.599	2.686	-38.126	-1.847
18	25.205	2.338	3.692	0.134
19	21.268	5.750	-8.046	-0.303
20	5.960	1.392	-30.131	-4.820
21	6.074	1.959	-14.011	-1.846
22	7.850	6.950	-27.494	-2.059
23	9.310	1.555	-26.232	-2.708
24	25.333	2.302	3.932	0.156
25	7.259	5.004	-50.163	-4.345
26	7.074	2.722	-13.871	-1.804
27	25.464	6.908	-107.813	-3.336
28	21.144	2.037	4.658	0.220
29	11.203	10.369	-37.347	-1.804
30	10.081	1.579	-20.988	-1.801