

$$\frac{V_1}{\omega_2} = \frac{V_1}{\Gamma} \checkmark$$

$$V_K = \omega_2 \cdot 2\Gamma = \frac{V_1}{\Gamma} \cdot 2\Gamma = 2V_1 \checkmark$$

$$\omega_3 = \frac{V_K}{1,5\Gamma} = \frac{2V_1}{1,5\Gamma} \checkmark$$

$$V_4 = V_F = \omega_3 \cdot 3\Gamma = \frac{2V_1}{1,5\Gamma} \cdot 3\Gamma = 4V_1, \quad V_C = V_K = 2V_1 \checkmark$$

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I - 30/30

II - 19/30

5.5.20 33

2. KE

$$① E_K = \frac{1}{2} m_1 \cdot V_1^2 = \frac{1}{2} \cdot 200 V_1^2 \checkmark$$

$$② E_C = \frac{1}{2} J_0 \cdot \omega_2^2 = \frac{1}{2} \cdot m_2 \cdot i_2^2 \cdot \frac{V_1^2}{\Gamma^2} = \frac{1}{2} \cdot 20 \cdot \Gamma^2 \cdot 2 \cdot \frac{V_1^2}{\Gamma^2} = \frac{1}{2} 40 V_1^2 \checkmark$$

$$③ E_C = \frac{1}{2} J_C \cdot \omega_3^2 + \frac{1}{2} m_3 \cdot V_C^2 = \frac{1}{2} \left( \frac{1}{2} m_3 (1,5\Gamma)^2 \cdot \frac{4V_1^2}{(1,5\Gamma)^2} + m_3 \cdot 4V_1^2 \right) = \frac{1}{2} \cdot 240 V_1^2 \checkmark$$

$$④ E_K = \frac{1}{2} m_4 \cdot V_4^2 = \frac{1}{2} \cdot 10 \cdot 4^2 V_1^2 = \frac{1}{2} 160 V_1^2 \checkmark$$

$$E_C = \frac{1}{2} \cdot 640 V_1^2 \checkmark$$

3. Мощності

$$P_{G_1} = G_1 \cdot \sin 60 \cdot V_1 = 200 \cdot 10 \sin 60 \cdot V_1 = 1732,05 V_1 \checkmark$$

$$P_T = -T \cdot V_1 = -(\mu \cdot N) \cdot V_1 = -(0,05 \cdot G \cdot \cos 60) V_1 = -(0,05 \cdot 200 \cdot 10 \cdot \cos 60) V_1 = -50 V_1 \checkmark$$

$$P_{G_2} = 0 \checkmark$$

$$P_{G_3} = -G_3 \cdot V_C = 40 \cdot 10 \cdot 2 V_1 = -800 V_1 \checkmark$$

$$P_{G_4} = -G_4 \cdot V_4 = 10 \cdot 10 \cdot 4 V_1 = 400 V_1 \checkmark$$

$$P = 482,05 V_1 \checkmark$$

4. Прил. на теор. за изм. на KE

$$\frac{dE_K}{dt} = P$$

$$\frac{d}{dt} \left( \frac{1}{2} 640 V_1^2 \right) = 482,05 V_1$$

$$640 \cdot \frac{dV_1}{dt} = 482,05$$

$$\frac{dV_1}{dt} = 0,753 \checkmark$$

$$\left. \begin{aligned} V_1 &= 0,753t + C_1 \\ x_1 &= 0,753 \frac{t^2}{2} + C_1 t + C_2 \end{aligned} \right\} \checkmark$$

5. Пред. на изкр. константи

$$\text{НЧ: } x_1 = 0, \quad v_1 = 0 \quad t = 0$$

$$0 = 0,753 \cdot \frac{0^2}{2} + C_1 \cdot 0 + C_2$$

$$0 = 0,753 \cdot 0 + C_1$$

$$C_1 = 0 \quad \text{и} \quad C_2 = 0 \checkmark$$

$$x_1 = 0,377 t^2$$

$$v_1 = 0,753 t \checkmark$$