

Вопросы Макович 14-14

4. Дано:

$$C = \frac{RC}{\lambda}$$

$$\lambda = \frac{3 \cdot 10^8}{\nu}$$

$$W_k = \frac{m v^2}{2}$$

У-?

$$V = \sqrt{\frac{2 \cdot C}{m \cdot \lambda}} = \sqrt{\frac{2 \cdot 6,6 \cdot 10^{-34} \cdot 3 \cdot 10^8}{9,1 \cdot 10^{-31} \cdot 3 \cdot 10^{-10}}} = 38143742 \frac{m}{c}$$

3. Дано

$$\alpha = 0,1' = \frac{\pi}{108000}$$

$$= 2,907 \cdot 10^{-5} \text{ рад}$$

$$i = 100$$

$$\lambda = 0,5 \mu m = 5 \cdot 10^{-7} m$$

$$h = 1,98 \cdot 10^{-25} \text{ Дж}$$

l-?

$$\left. \begin{aligned} 2d_1 \sqrt{n_2^2 - n_1^2 \sin^2 i} &= (2k_1 + 1) \frac{\lambda}{2} \\ 2d_2 \sqrt{n_2^2 - n_1^2 \sin^2 i} &= (2k_2 + 1) \frac{\lambda}{2} \\ n=1 \\ 2(d_2 - d_1) &= (k_2 - k_1) \lambda \\ d_2 - d_1 &= (k_2 - k_1) \lambda \\ l_2 &= \frac{(k_2 - k_1) \lambda}{2 \cdot 1} \\ l &= \frac{(k_2 - k_1) \lambda}{2 \cdot 1 \cdot 2} \\ l &= \frac{1 \cdot 5 \cdot 10^{-7}}{2 \cdot 1 \cdot 2,907 \cdot 10^5} \approx 8,55 \cdot 10^{-3} (m) \end{aligned} \right\}$$

2. Дано

$$l = 40 cm = 0,4 m$$

η-?

Т-?

$$\left. \begin{aligned} T \ddot{u} &= \bar{M} \\ T \ddot{u} &= -mgl \sin \varphi + F_A l \sin \varphi \\ \text{Сила пружины } F_A &= \rho g V \\ \tau = \frac{F}{S}, I &= \rho l z_0 g V \\ \tau l \ddot{u} &= g \varphi - \eta g u \\ T \omega_0^2 &= \frac{2gl}{l} \Rightarrow T = 2gl \frac{l}{g(l-l)} \end{aligned} \right\}$$

Дано

$$a = 0,3 m$$

$$w = 64,8 \frac{m}{c \cdot t}$$

$$\beta = 13,08 w \cdot t$$

$$\beta_0 = 10^{-3} \text{ рад}$$

$$w = 31,4 \frac{m}{c}$$

$$\beta = 13,08 w \cdot t$$

$$\varphi = \beta_0 \cos \omega t$$

$$\beta = \beta(t) = \beta_0 \cos \omega t$$

$$C = \frac{dT}{dt}$$