

Popravni prvog redovnog kolokvijuma iz Tehničke fizike 1

$$\vec{v}(t) = A \cdot \vec{e}_x + B \cdot \omega \cdot \cos\left(\omega \cdot t + \frac{\pi}{4}\right) \cdot \vec{e}_y$$

1. a) $\vec{a}(t) = -B \cdot \omega^2 \cdot \sin\left(\omega \cdot t + \frac{\pi}{4}\right) \cdot \vec{e}_y$, b) $v_{av} = |A|$, c) $\sphericalangle(\vec{a}, \vec{v}) = 90^\circ$.

2. a) $\alpha = 14,5^\circ$, b) $\frac{D_1}{h_{\max 2}} = 32 \cdot \sin 2\alpha = 15,5$.

3. a) $\theta = \arctg\left(\frac{1}{\mu} - \frac{1}{2}\right) = 39^\circ$, b) $A_{Fr} = -m \cdot g \cdot h = -100 \text{ J}$.

4. $\theta = 30^\circ$, $\varphi = 60^\circ$.

5. a) $\frac{T_1}{T_2} = \frac{1}{2\sqrt{2}}$, b) $\frac{g_1}{g_2} = 4$, c) $\frac{m_1}{m_2} = \frac{1}{2}$.

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Popravni drugog redovnog kolokvijuma iz Tehničke fizike 1

1. $\theta = \arccos \frac{128}{209} = 52,2^\circ$

2. $x_{01} = x_0 \cdot \frac{\sqrt{111}}{10}, T_1 = \frac{\pi\sqrt{5}}{\omega_0}$

3. a) $v_{02} = 80 \text{ Hz}$, b) $c_2 = 24 \text{ m/s}$.

4. a) $t_{i1} = \sqrt{\frac{30 \cdot h_0}{g}}$, b) $t_{i2} = \sqrt{\frac{8 \cdot h_0}{g}}$.

5. b) $Q_{1-4} = 14,5 \text{ kJ}$, c) $A_{1-4} = 3,1 \text{ kJ}$, d) $\Delta U_{1-4} = 11,4 \text{ kJ}$