

2025 年春季学期大学物理学期中考试答案（群友版）

1 填空题

1. $v^2 - v_0^2 = -kx^2$

2. $3\sqrt{2}m/s \approx 4.24m/s$

3. $3:2$

4. $2:5:11$

5. $\frac{1}{2}mv_0^2 + mg \sin \theta (x - \frac{mg \sin \theta}{k}) - \frac{1}{2}k(x^2 - (\frac{mg \sin \theta}{k})^2) = \frac{1}{2}mv_0^2 + mgx \sin \theta - \frac{1}{2}kx^2 - \frac{(mg \sin \theta)^2}{2k}$

6. $-\frac{3}{4}mgh$

7. $\frac{1}{2}m(R_1^2 + R_2^2)$

8. $(\frac{\tau}{\tau_0} - 1)m_0c^2$

9. $p_0 + \rho g(h + H(1 - \frac{r^4}{R^4}))$

2 计算题

1. $\frac{3v_0}{2l}$

2. $\Delta x_1 = \sqrt{\frac{k_2}{k_1} \cdot \frac{m_1 m_2 v_0^2}{(m_1 + m_2)(k_1 + k_2)}}, \Delta x_2 = \sqrt{\frac{k_1}{k_2} \cdot \frac{m_1 m_2 v_0^2}{(m_1 + m_2)(k_1 + k_2)}}$

3. $1200m$