

Physics 2325 - Dr. Terry Honan

■ Test 4 - A - Answers

Problem 1 (i) yes (ii) no

Problem 2 (a) 7.16 s (b) $v = 0.302 \text{ m/s}$ and $a = 0.853 \text{ m/s}^2$

Problem 3 (a) $2.05 \times 10^{-6} \text{ N}$ (b) $2.63 \times 10^{-4} \frac{\text{m}}{\text{s}}$ (c) 30.1 AU

Problem 4 (a) $372 \frac{\text{J}}{\text{kg}\cdot\text{K}}$ (b) 3.40 s (c) $\sqrt{v_0^2 + 2GM\left(\frac{1}{R} - \frac{1}{R+h}\right)}$

■ Test 4 - B - Answers

Problem 1 (i) F (ii) D (iii) G

Problem 2 2.377 kg

Problem 3 $2\pi \sqrt{\frac{2L}{3g}}$

Problem 4 (a) $v = 0.937 \text{ m/s}$ and $a = 17.5 \text{ m/s}^2$ (b) 4.36 m/s^2 (c) 0.288 Hz

Problem 5 (a) $v_{\text{max}} = 2.1 \text{ m/s}$ and $f = 22.3 \text{ Hz}$ (b) $T = 1.96 \text{ N}$ and $\mathcal{P} = 0.123 \text{ W}$

Problem 6 $\sqrt{GM\left(\frac{1}{2R} - \frac{1}{d}\right)}$

Problem 7 $m = 0.0633 \text{ kg}$