

Physics 2325 - Dr. Terry Honan

■ Test 3 - A - Answers

Problem 1 (i) + (ii) 0 (iii) +

Problem 2 (a) -0.42 m/s and 0.48 m/s (b) $\sqrt{2gh / \left(1 + \frac{M}{2m}\right)}$ (c) $2/3 \text{ s}$

Problem 3 (a) $-\frac{1}{3} \frac{\text{m}}{\text{s}}$ (b) 0.0919 m/s (c) $\frac{m}{m+M}d$ (d) 0.153 (e) 17.53 N

Problem 4 $\langle 105, 0, -70 \rangle \text{ N}\cdot\text{m}$

Problem 5 (a) $mg \frac{L}{2x \sin \theta}$ (b) $\frac{3}{2} \frac{g}{L}$ (c) $\sqrt{3gL}$

■ Test 3 - B - Answers

Problem 1 (i) - (ii) 0 (iii) -

Problem 2 $35 \text{ kg}\cdot\text{m}^2$

Problem 3 (a) -0.18 m/s and 0.22 m/s (b) $\langle 255, 75 \rangle \text{ N}$

Problem 4 (a) $2/5$ (b) $\langle -60, -40, 0 \rangle \text{ kg}\cdot\text{m}^2/\text{s}$

Problem 5 (a) 8.32 rad/s (b) 17.29 rad/s^2

Problem 6 Thumb: 8 W , Fingers: 9 W

Problem 7 (a) 3.56 times (b) $v = 0.45 \text{ m/s}$ and $a = 0.383 \text{ m/s}^2$ (c) $0.108 \text{ N}\cdot\text{m}$