

Physics 2425 - Dr. Terry Honan

■ Test 1 - A - Answers

Problem 1 (i) G (ii) E (iii) H (iv) B (v) E

Problem 2 168 N

Problem 3 Displacement: $\langle -102.5 \text{ m}, -243.8 \text{ m} \rangle$,
Magnitude: 264. m , Direction: 247.2°

Problem 4 (a) 2.87 s (b) $2.36 \frac{\text{liter}}{\text{s}}$ (c) $52.4 \frac{\text{m}}{\text{s}}$

Problem 5 (a) 23.5 N (b) $17.7 \frac{\text{m}}{\text{s}}$

Problem 6 (a) $m = \frac{1}{2}$, $n = -\frac{1}{2}$ and $p = \frac{1}{2}$ (b) $14.6 \frac{\text{m}}{\text{s}}$ (c) $\langle -40, 30 \rangle \frac{\text{m}}{\text{s}}$

Problem 7 (a) $\langle 5, 7 \rangle \frac{\text{m}}{\text{s}}$ (b) 16200 N

■ Test 1 - B - Answers

Problem 1 (i) D (ii) D

Problem 2

v_x	v_y	a_x	a_y
-	0	+	+

Problem 3 (a) $4 \frac{\text{m}}{\text{s}}$ (b) 1250 N

Problem 4 $T_1 = \frac{W}{\sin \theta}$ and $T_2 = \frac{W}{\tan \theta}$

Problem 5 (a) Displacement: $\langle -1.13, -4.10 \rangle \text{ km}$,
Magnitude: 4.24 km , Direction angle: 254.5°
(b) 3.75 s (c) 2.54 m (d) 100 mi/hr at 36.9°

Problem 6 $-3.6 \frac{\text{m}}{\text{s}}$

Problem 7 (a) $T_1 = 54.3 \text{ N}$ and $T_2 = 90.5 \text{ N}$ (b) $\frac{3 m_2 g}{m_1 + 9 m_2}$

Problem 8 (a) $7.92 \frac{\text{m}}{\text{s}}$ (b) $\frac{L^3}{M T^2}$ (c) $38.1 \frac{\text{ft}^3}{\text{hr}}$