

## CH 9: Center of Mass and Linear Momentum

Chapter Homework: Problems 28, 36, 48, 60

Day	Topics	Section Homework	Pre-Reading
0			Sec. 9.1-9.2 Pg. 202-206 (15 min)
1	Center of Mass	P: 1 [ 1.07 m, 1.33 m, towards $m_3$ ] 4 [ -0.0045 m, -0.020 m ] 6 [ 0.065 m, 0.083 m, 0.014 m ]	Sec. 9.3 Pg. 206-209 (10 min)
2	Newton's Second Law for a System of Particles	Q: 1, 2, 3 P: 11 [ 22 m, 9.33 m/s ] 12 [ $-4\hat{i} + 4\hat{j}$ ]	Sec. 9.4-9.5 Pg. 209-210 (5 min)
3	Linear Momentum Linear Momentum of a System of Particles	P: 18 [ 4.9 kg•m/s ] 19 [ 74600 J, 38200 kg•m/s, 38.8° S of E ] 20 [ $30^\circ$ , -0.572 kg•m/s $\hat{j}$ ]	Sec. 9.6 Pg. 210-213 (10 min)
4	Collision and Impulse	Q: 5 P: 23 [ 67 m/s, neg X-dir, 1200 N, neg X-dir ] 32 [ 986 N ] 34 [ 7.17 kg•m/s, 16 kg•m/s ]	Sec. 9.7 Pg. 214-216 (10 min)
5	Conservation of Linear Momentum	Q: 6, 7 P: 35 [ $2.99 \times 10^{-3}$ m/s ] 39 [ 3.50 m/s ] 44 [ 20 J, 40 J ]	Sec. 9.8-9.9 Pg. 217-220 (10 min)
6	Momentum and Kinetic Energy in Collisions Inelastic Collisions in One Dimension	Q: 9 P: 46 [ 308 m/s ] 51 [ 2 m/s, -1.25 J, +40 J, released $E_{int}$ ] 53 [ 0.25 m ]	Sec. 9.10-9.11 Pg. 220-224 (10 min)
7	Elastic Collisions in One Dimension Collisions in Two Dimensions	Q: 8, 11 P: 55 [ 0.099 kg, 1.86 m/s, 0.93 m/s ] 56 [ 1.9 m/s, right, elastic ] 63 [ 0.21 kg, 7.20 m ] 66 [ $10\hat{i} + 15\hat{j}$ , -500 J ]	
8	Work Day		
9	Lab: Elastic Collision		
10	Test		