Wednesday, October 17/12
Physics 122/121

1. Questions re Relative Motion?
2. Test Torque and Relative Velocity - Thursday
3. Review: Momentum and Impulse
4. Conservation of Momentum
5. Types of Collisions/Explosions
6. 1D Collisions/Explosions — Stopped Here P6
7. Handout - 1D Collisions 1,3,5,7,9 — Stopped Here P1
8. 2D Collisions/Explosion
9. Lab
10. Elastic and Inelastic Collisions (1D)

Boat Simulation:
http://www.physicsclassroom.com/shwave/rboat.cfm
Pass In: #4-9 (4Ds Late)

Torque Problems

Handout - Torque

Textbook - Page 501 #31
Page 529 #27

Textbook - Page 501 #33 (a)
Page 529 #28 (a)

Handout - More Torque Problems (3)

#5. $\vec{F}_{hy} = 22.1\,N$, up

#6. $\vec{F}_{hy} = +1.3 \times 10^{3}\,N$

Relative Velocity

Page 110 - #21, 22, 25, 27(a)
Page 117 - #23, 24, 29
#25 (Level 1) *25. Level 1 ⇒ Text Incorrect

Handouts (3)

P. 110 - #21 −1.8 m/s ✓
#22. 12 m/s, 66° SofW ✓
#25. a) 25° E of N
65° N of E
b) 70 s ← * back 69 s
#27. a) 1.6 m/s, 14° S of E ✓

P. 117. #23. a) 1.3 m/s [N] ✓
b) 3.7 m/s [S] ✓
#24. a) 26° N of E
64° E of N ✓
b) 1.7 m/s ✓
c) 2.8×10^{3} s ←
47 min ←

L1 * 25. 4.3 m/s, 85° N of E
5.4° E of N

#29. a) 49° N of E
41° wrt the river bank
b) 2.3 min

Physics 20
Chapter 2 - Worksheet (2nd page of Relative Motion review)

Level 1 -> #4 c, d

#4d => 1.5×10^{2} km/h, 21° S of W

Example: When a car of mass 2.0×10^3 kg moving at 9.0 m/s collides head on with a second car having a mass of 1.5×10^3 kg, the cars lock and come to rest at the point of collision. What was the velocity of the second car before the collision?

Example: A 6500 kg train travelling at 2.5 m/s collides with a stationary 8000 kg train. If they interlock upon collision, find their velocity after the collision.

Example: A shell having a mass of 25.0 kg is fired horizontally eastward from a cannon with a velocity of 500 m/s. If the mass of the cannon is 1000 kg, what is the magnitude and direction of the recoil velocity?