**Objective F: Energy and Momentum**

1. A 4.25 gram bullet going 613 m/s strikes a 216 g block of wood and sticks in it without emerging. What is the velocity of the bullet and block of wood after the collision? What is the kinetic energy of the bullet before the collision? What is the kinetic energy of the bullet and block combo after the collision? How much kinetic energy goes missing? What happens to the missing kinetic energy? (11.8 m/s, 799 J, 15.4 J, 783 J, turns to heat)
2. A 125 g bullet going 516 m/s sticks into a 16.25 kg block of wood hanging from a very long string. What is the velocity of the block right after the collision? To what height does the block rise on the string? (3.94 m/s, 0.792 m)
3. A 125 g bullet sticks into a 16.25 kg block of wood hanging from a very long string. It makes the block rise to a height of .426 m. What was this bullet’s original velocity? (379 m/s)
4. Yet another 125 g bullet going 516 m/s goes right through the 16.25 kg block of wood hanging from a very long string, and is going 314 m/s after it goes through the block. What is the block’s velocity after it passes through, and to what height does the block rise? (1.55 m/s, 0.123 m)
5. A 2.85 g bullet going 523 m/s vertically upward strikes the bottom of a 517 g block of wood at rest and sticks in the block without emerging. What is the velocity of the bullet and block combo right after the collision? To what height above its original position does the block rise after the collision? (2.87 m/s, 41.9 cm)
6. Problems from Chapter 7: 32(0.16 m in the y, 0.94 m in the x),