# Ch 7 #14

**This one's pretty tough: Treat it as a conservation of momentum situation <u>in the sideways direction only</u>. Figure out how much sideways momentum the ship gains, and use this to calculate the mass of gas that must be fired the other way.**

**Note: Be careful about masses after the gas is fired. Is the ship's mass still 3180kg after it loses mass from firing the gas?**

# Ch 7 #17

**Impulse is equal to change in momentum, but the ball's momentum changes <u>only in the horizontal direction</u>. So only use the x-component of the ball's velocity, and don't forget that positive/negative direction of the velocity matters.**

# Ch 7 #29

**It's got to be done in three parts…**

1. **Conservation of energy to find pre-collision speeds.**
2. **Conservation of momentum during the collision.**
3. **Two different projectile problems after they are launched from the table.**

# Ch 7 #32

**It's a lot like the example we did in class, but it didn't ask for the angle of displacement, but instead asks for the vertical and horizontal components of the displacement.**

**After p-conservation, the vertical component of displacement (height) can be found with conservation of energy. The horizontal component must be found after you calculate the angle.**

# Ch 7 #66

Skip this one.

# Ch 7 #71

**It needs to be done in two parts, worked backwards chronologically. Use E-conservation (with $W_{fric}$) to find the speed after the collision. Then work backwards with p-conservation to find the bullet's speed before the collision.**

# Ch 7 #79

**Part A has two steps, with E-conservation followed by p-conservation (plus elastic ideas).**

**Part B is simply an E-conservation problem, but the answer isn't the height. It's the distance *along the incline*.**