Name: _____ Lab Section: _____ Date: _____

PreLab: Air Resistance

Instructions: Prepare for this lab activity by answering the questions below. Note that this is a **Pre**Lab. It must be turned in at the start of the lab period. Time cannot be given in lab to perform PreLab activities. After the start of lab activities, PreLabs cannot be accepted. Explain your answers. Points will be taken off if your work is not neat and well organized.

1. (5 points) Give three factors that affect the amount of air resistance an object experiences, and describe how each factor influences air resistance (will the air resistance go up, or go down if that variable alone were changed?

2. (5 points) Make a free body diagram for the falling filter for the moment just after you drop it.. (Use a ruler to draw straight lines.)

3. (5 points 1408/3 points 1420) Make a free body diagram for the falling filter for when it has reached terminal velocity. (Use a ruler to draw straight lines.)

4. (1420 ONLY 2 points) Evaluate: $\int_0^{\pi} (\sin x + \cos x)\, dx$