For both problems, just Print the final graph. Staple and hand in by end of office hours on Monday (2pm).

1. Re-open Notebook 1-4 (air glider on a spring). All changes should be discarded.
   * As you did in class, change the update of the position from Euler to Euler-Cromer.
   * Change the number of time steps to 550 and add a new variable:

     b_over_m = 0.5
   * In the acceleration function, you coded

     $$a = -\frac{k}{m}(x - x_{resting})$$
   * Add friction so that

     $$a = -\frac{k}{m}(x - x_{resting}) - \frac{b}{m}v$$

     this is where you will use b_over_m
   * The final graph should show a "damped" oscillation

2. Re-open Notebook 1-3 (drag racer)

* Fill in the missing Euler method code just as you did in class.
* Execute the code and make sure you get 8.5 as the final time and 408.0 as the final position.
* Our drag racer had no wind resistance. We just had $a = 12.$ (units are m/s^2 but the code doesn't care about units)
* Add air resistance. In the Euler method code where there was the constant a you will be coding the following formula:

$$v_{after} = v_{before} + (12.0 - 0.006 \cdot v_{before}^2) \cdot \Delta t$$

~~$x_{after} = x_{before}$~~ $+ (12.0 - 0.006 \cdot v_{before}^2) \cdot \Delta t$

* If you do this right, the drag race will take 12.0 seconds at which time the car will be at 416.62 meters, and it will be obvious from the graph that the car is reaching a terminal velocity (parabola flattens).