

1. Consider a 10.8 kg projectile launched with an initial speed of 92.3 m/s, at an angle of 31.7° . The force due to air resistance is $\vec{F}_D = -b\vec{v}$, where $b = 8.43$ kg/s. (This is called linear drag because the velocity is not squared) The x- and y- components of the acceleration of the object are:

$$a_x = -\frac{bv_x}{m} \quad (0.1)$$

$$a_y = -g - \frac{bv_y}{m} \quad (0.2)$$

- a) Using Python, implement Euler's method to find the trajectory of the projectile (x and y coordinates).
- b) What is the range of the projectile? (ans: about 100 m)
- c) Using trial and error (or you can try and be more clever if you want), determine the launch angle that gives the maximum range of the projectile. (ans: about 18°)

The plot of your trajectory should look similar to:

