1. How do you use number π in Python? And sine and cosine functions?

You use them through the numpy library. To use the number pi:

import numpy as np

pi = np.pi

np.sin(angle)

np.cos(angle)

1. What is the Python function to sample from a uniform distribution? Read Section 1 for help.

Again, with numpy library:

np.random.uniform

You can use any other distribution like normal, poisson, etc.

1. Which methods in map.py might be useful to complete the code requested in Section 1? What would you use them for?

I would use contains to check if the points I’m drawing are inside the map. And I would also use check\_collisions to see if the points are drawn in empty spaces of the map or if they’re drawn on top of obstacles.

1. What function can you use to overlay particles on the map of the envioronment? Where are these figures saved?

With the plot function on particle\_filter you put the particles in the radial axis of the map, and with the show function you plot the map with the particles through the matlib function.