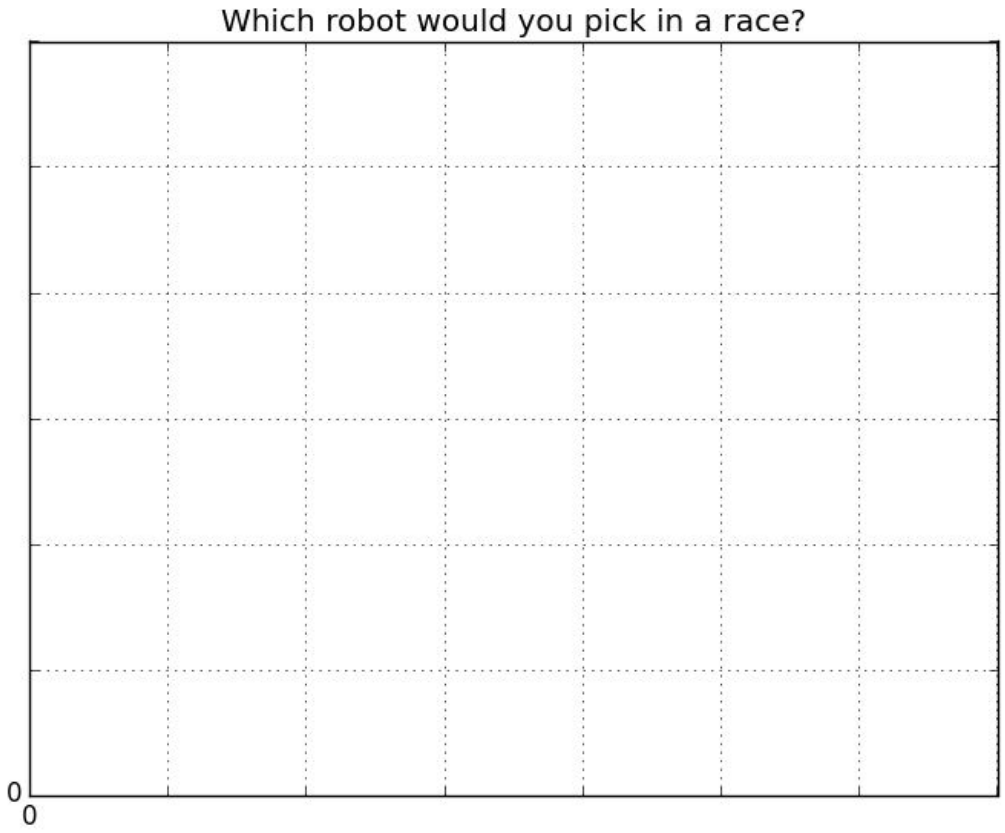
Function Lab: Part 1

Get together with another group (you will need four robots for this). Attach one of the robots to your computer and label the other three as follows: one should be labeled *Linear*, the next *Quadratic*, and the third *Exponential*. Once they are all lined up about six inches apart, run the program called functionLab.py and make sure to enter the correct Linkbot for each label.

As you watch the Linkbots move look for similarities and differences. Which one(s) start off slow and then get faster? Which one(s) move at a mostly constant speed? Which one would you like to have in a race?

Notes:



After the Linkbots have finished moving a graph will appear on your screen. Sketch the graph below (use a different color for each Linkbot).

Use the graph to fill in the table below for the bots:

Seconds	Average Speed (deg/s): Linear	Average Speed (deg/s): Quadratic	Average Speed (deg/s): Exponential
0-1			
1-2			
2-3			
3-4			
4-5			
5-6			

What do you notice about the speed of Linkbot whose graph was linear?
What do you notice about the speed of Linkbot whose graph was quadratic?
What do you notice about the speed of Linkbot whose graph was exponential?

Add a row for 6-7 seconds and predict what the average speed will be for each.

Which graph would you like your Linkbot to match? Why?