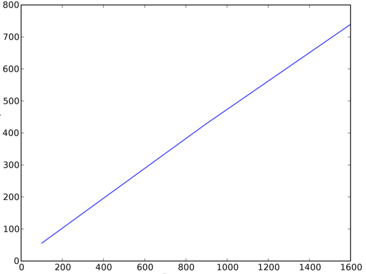
**Problem 6: Data Plotting**

Now, you'll use your simulation to answer some questions about the robots' performance.

In order to do this problem, you will be using a Python tool called [PyLab](http://www.scipy.org/getting-started.html).

Below is an example of a plot. This plot does not use the same axes that your plots will use; it merely serves as an example of the types of images that the PyLab package produces.

[](https://courses.edx.org/assets/courseware/v1/5e3b84f365c85ef9f5413b3d0d681c3c/asset-v1:MITx+6.00.2x+1T2021+type@asset+block/files_ps07_files_sampleplot-small.png)

**Note to those who did the optional visualization:** For problem 6, we make calls to runSimulation() to get simulation data and plot it. However, you don't want the visualization getting in the way. If you chose to do the visualization exercise, before you get started on problem 6 (and before you submit your code in submission boxes), **make sure to comment the visualization code out of runSimulation()**. There should be 3 lines to comment out. If you do not comment these lines, your code will take a REALLY long time to run!!

**For the questions below, call the given function with the proper arguments to generate a plot using PyLab.**

### **Problem 6-1**

3 points possible (graded)

Examine showPlot1 in ps2.py, which takes in the parameters title, x\_label, and y\_label. Your job is to examine the code and figure out what the plot produced by the function tells you. Try calling showPlot1 with appropriate arguments to produce a few plots. Then, answer the following 3 questions.

1. Which of the following would be the best title for the graph?

Percentage Of Room That A Robot Cleans

Time It Takes 1 - 10 Robots To Clean 70% Of A Room

Percentage Of Room That 1 - 10 Robots Clean

Time It Takes 1 - 10 Robots To Clean 80% Of A Room

Time For Robots To Clean Varying Percentages Of A Room

Area Of Room That 1 - 10 Robots Clean

1. Which of the following would be the best x-axis label for the graph?

Time-steps

Percentage Cleaned

Aspect Ratio

Number of Robots

Distance Travelled

1. Which of the following would be the best y-axis label for the graph?

Time-steps

Percentage Cleaned

Aspect Ratio

Number of Robots

Distance Travelled

You have used 0 of 2 attemptsSome problems have options such as save, reset, hints, or show answer. These options follow the Submit button.

### **Problem 6-2**

3 points possible (graded)

Examine showPlot2 in ps2.py, which takes in the parameters title, x\_label, and y\_label. Your job is to examine the code and figure out what the plot produced by the function tells you. Try calling showPlot2 with appropriate arguments to produce a few plots. Then, answer the following 3 questions.

1. Which of the following would be the best title for the graph?

Percentage Of Room That A Robot Cleans

Time It Takes Two Robots To Clean 80% Of Variously Sized Rooms

Time It Takes Two Robots To Clean 80% Of Variously Shaped Rooms

Time It Takes 1 - 10 Robots To Clean 80% Of A Room

Percentage Of Variously Sized Rooms That A Robot Cleans

Percentage Of Variously Shaped Rooms That A Robot Cleans

Examine **showPlot2** in ps2.py, which takes in the same parameters as showPlot1. Your job is to examine the code and figure out what the plot produced by the function tells you. Try calling showPlot2 with appropriate arguments to produce a few plots. Then, answer the following 3 questions.

1. Which of the following would be the best x-axis label for the graph?

Time-steps

Percentage Cleaned

Aspect Ratio

Number of Robots

Distance Travelled

1. Which of the following would be the best y-axis label for the graph?

Time-steps

Percentage Cleaned

Aspect Ratio

Number of Robots

Distance Travelled