**Assignment 1: Random Walk**

1. **Task:** Imagine a drunken man who, starting out leaning against a lamp post in the middle of an open space, takes a series of steps of the same length: 1 meter. The direction of these steps is randomly chosen from North, South, East or West. After n steps, how far (d), generally speaking, is the man from the lamp post? Note that d is the Euclidean distance of the man from the lamp-post.
2. **Conclusion:** Distance from lamp (d) is approximately the square root of No. of Steps (n)

d = √n

1. **Evidence**: Here we plot out values in a graph. Where x-axis is distance from lamp and y-axis is number of steps. Along with function y(x) = x^2

Text

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| --- | --- |
| **No. of Steps (n)** | **Distance from lamp (d)** |
| 1 | 1 |
| 10 | 3.03 |
| 35 | 5.44 |
| 50 | 6.69 |
| 70 | 7.68 |
| 144 | 11.78 |
| 200 | 13.14 |

Graphical user interface, text, application

Description automatically generated

Chart, line chart

Description automatically generated

1. **Code:** Attached in zipped folder.
2. **Unit Tests:** Text

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