**Relationship conclusion:**

The relationship between steps n and mean distances d is that: n = d^2;

**Output to prove the relationship:**

Look at the output below. we can clearly see that for each value of steps, we run the experiment over 10000 times, and the relationship between the steps and the mean of distance square is very close. It verifies that n = d^2;

A screenshot of a cell phone

Description automatically generated

**spreadsheet:**

The spreadsheet of the output could clearly show that it verifies the relationship:

|  |  |  |  |
| --- | --- | --- | --- |
| Steps | Mean distance | Mean distance square | Experiment times |
| 100 | 8.823447395746635 | 100.2097 | 100000 |
| 200 | 12.561191757628448 | 200.44368 | 100000 |
| 300 | 15. 346956279885312 | 298.60764 | 100000 |
| 400 | 17. 675379797984462 | 401.13502 | 100000 |
| 500 | 19. 796212313370948 | 500.25444 | 100000 |
| 600 | 21. 69654642173881 | 599.44774 | 100000 |

**It passed all unit tests.**

A screenshot of a cell phone

Description automatically generated