**Submission Form**

**Fill up the following slots with appropriate content. You must submit the content of this document from this page only.**

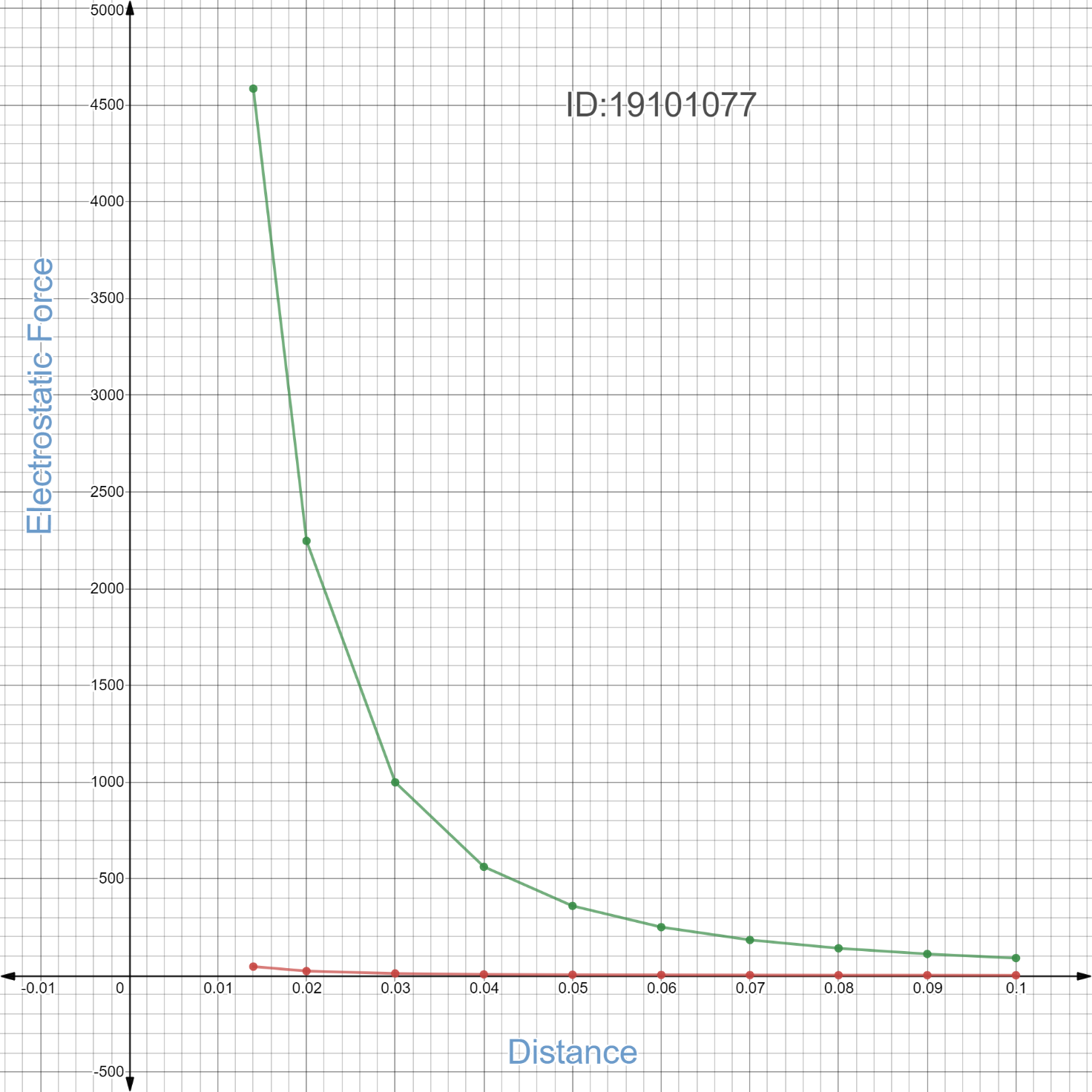
1. Your Name: Mohammad Shafkat Hasan
2. Your ID: 19101077
3. Your Section: 04
4. Experiment No: 01
5. Experiment Title: Verifying the inverse square nature of Coulomb's law and determining the value of Coulomb's constant, “k”.
6. **You must write your ID in each of the graphs you insert here.**
7. **Table 1**: both charges are **positive**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl:** | Distance ***r (meter)*** |  |  | Electrostatic force ***FE*** |  |
| 1. | 0.014 | -1.853871964 | 5102.040816 | 4585.485 | 3.661385277 |
| 2. | 0.02 | -1.698970004 | 2500 | 2246.888 | 3.351581425 |
| 3. | 0.03 | -1.522878745 | 1111.111111 | 998.617 | 2.999398955 |
| 4 | 0.04 | -1.397940009 | 625 | 561.722 | 2.749521433 |
| 5 | 0.05 | -1.301029996 | 400 | 359.502 | 2.555701311 |
| 6. | 0.06 | -1.22184875 | 277.7777778 | 249.654 | 2.397338529 |
| 7. | 0.07 | -1.15490196 | 204.0816327 | 183.419 | 2.263444321 |
| 8. | 0.08 | -1.096910013 | 156.25 | 140.43 | 2.147459896 |
| 9. | 0.09 | -1.045757491 | 123.4567901 | 110.957 | 2.045154706 |
| 10. | 0.1 | -1 | 100 | 89.876 | 1.953643736 |

1. **Table 2:** one of the charges are positive and another is negative.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl:** | Distance ***r (meter)*** |  |  | Electrostatic force ***FE*** |  |
| 1. | 0.014 | -1.853871964 | 5102.040816 | 45.855 | 1.661386698 |
| 2. | 0.02 | -1.698970004 | 2500 | 22.469 | 1.351583744 |
| 3. | 0.03 | -1.522878745 | 1111.111111 | 9.986 | 0.999391562 |
| 4 | 0.04 | -1.397940009 | 625 | 5.617 | 0.749504424 |
| 5 | 0.05 | -1.301029996 | 400 | 3.595 | 0.555698895 |
| 6. | 0.06 | -1.22184875 | 277.7777778 | 2.497 | 0.397418542 |
| 7. | 0.07 | -1.15490196 | 204.0816327 | 1.834 | 0.263399331 |
| 8. | 0.08 | -1.096910013 | 156.25 | 1.404 | 0.147367108 |
| 9. | 0.09 | -1.045757491 | 123.4567901 | 1.11 | 0.045322979 |
| 10. | 0.1 | -1 | 100 | 0.899 | -0.046240308 |

1. Draw vs graph that is you plot along the axis and along the axis. For two tables you will get two curves. You can draw into one curve if you want. Insert the **graph-1** as image here:



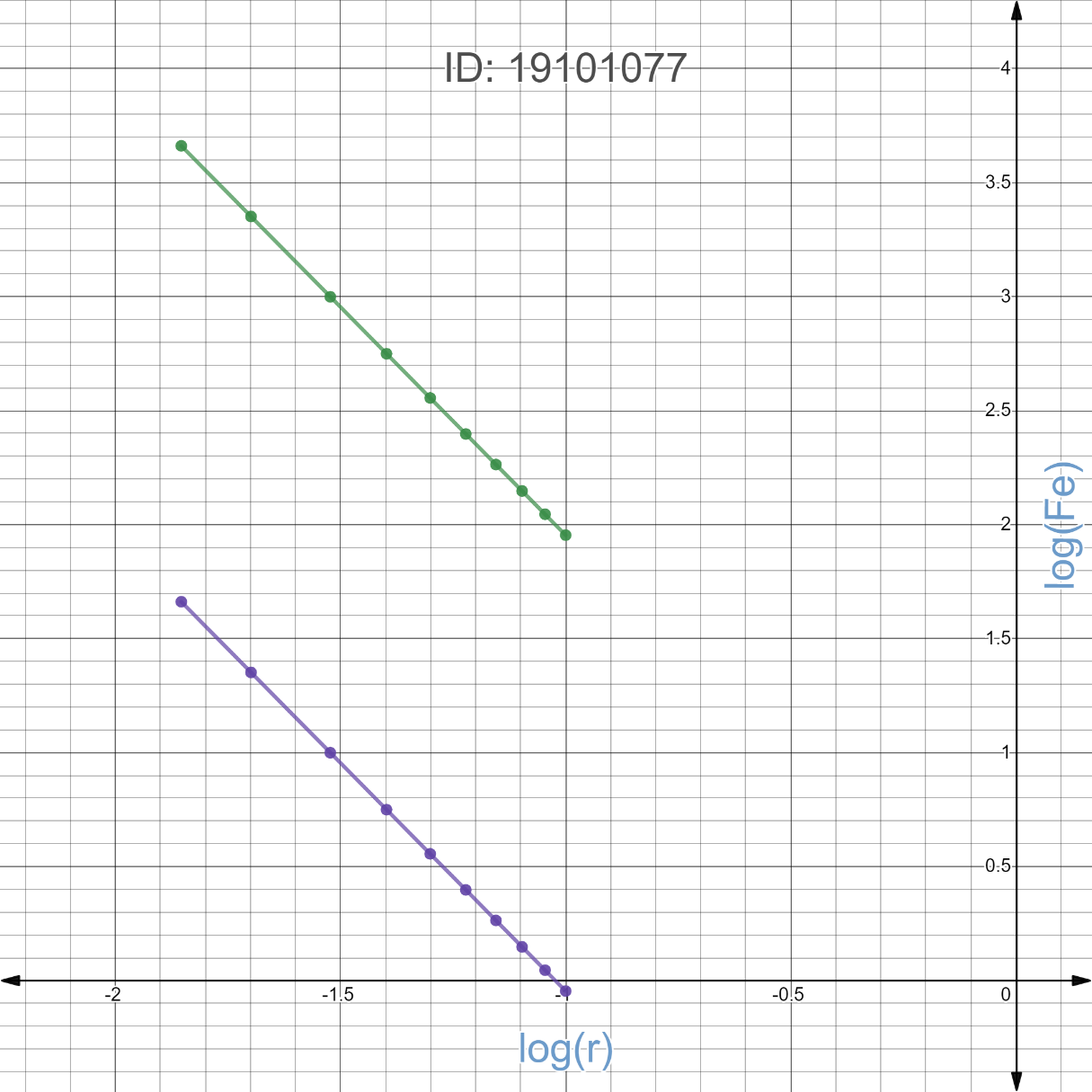
1. Draw vs graph that is you plot along the axis and along the axis. For two tables you will get two lines. Find the slope from both of the straight lines you get.

Slope from line 1: 1.61246

Slope from line 2: -0.387517

Mean slope: 0.6124715

Insert the **graph-2** here:



1. Draw the Electrostatic Force, vs inverse square distance, curve. You plot along the axis and along the axis. You will get two straight lines for each table. Find the slope of each line.

Slope from line 1: 0.898755

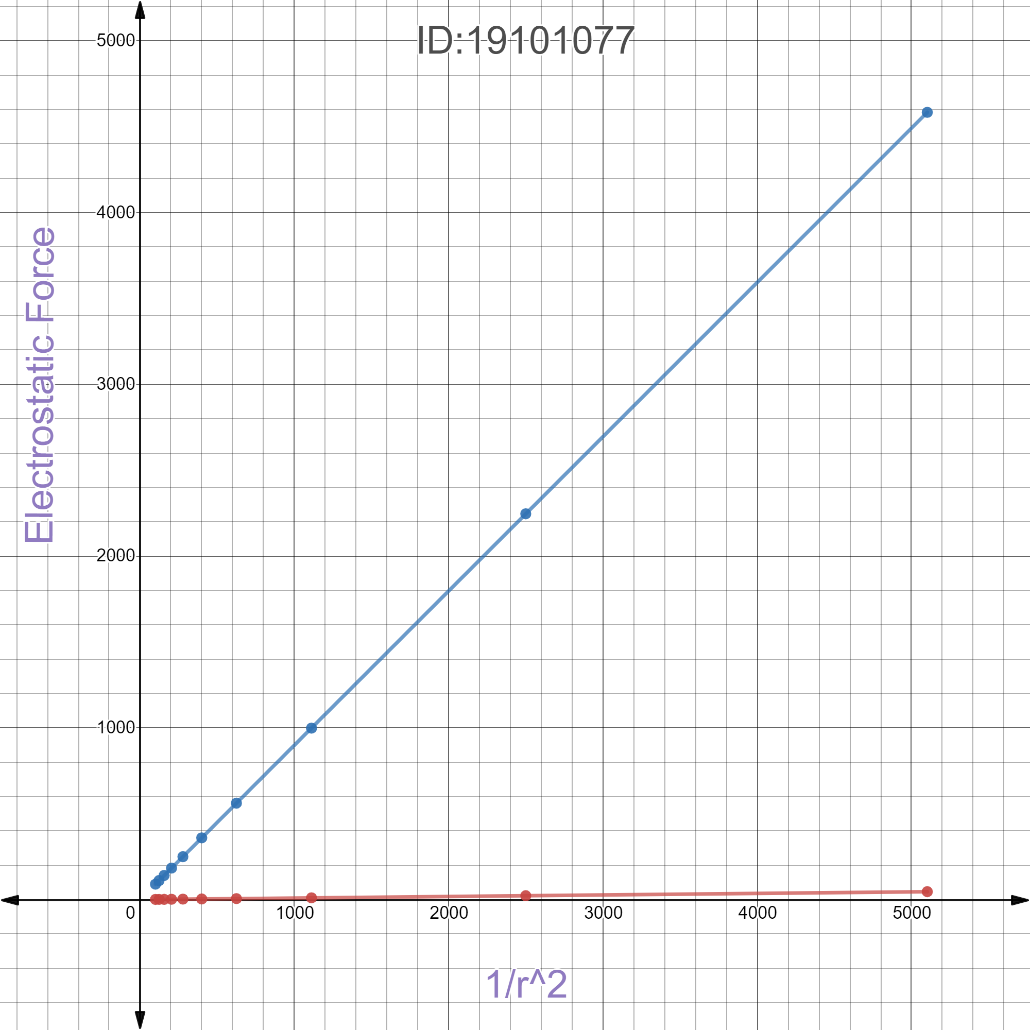
Slope from line 2: 0.00898757

For each table you have different and . Calculate for each table:

from line 1: 8987550000

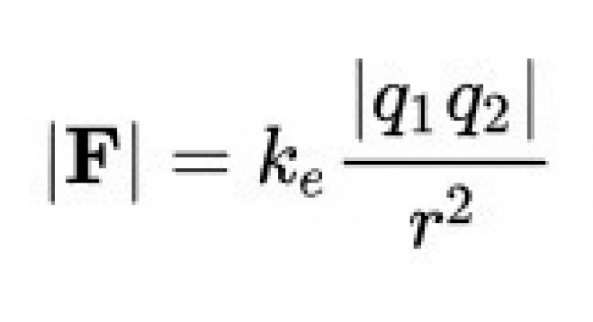
from line 2: 8987570000

Mean : 8987560000

Insert the **graph-3** here:

1. **Please briefly** discuss how the process of taking logs allows to find the inverse squared nature of Coulomb force and anything related to this experiment that you found interesting.   
     
   You are ***strongly*** encouraged to use your **own words** to describe your thoughts. **However, any kind of plagiarism (such as copying and pasting from other students’ lab-reports) will not be tolerated and will be subject to disciplinary action according to BracU policy.**

**Discuss here:**

Coulombs’ law is,

By taking logs, we got a graph of straight lines.

In my experiment k of line 01 and 02 is almost similar witch is really easy to calculate.

Making graph through Desmos is also very fun.