Lab 2: Electric Field and Potential

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1 Purpose

To study the relationship between electric field and the electric potential difference associated with it.

2 Theory

The relationship between the electric field and electric potential difference will follow the equation $\Delta V = -\int_a^b \vec{E} \cdot ds$, which simplified is $\Delta V = \frac{k_e q}{r}$. This means electric potential will have a opposite yet linear relationship with the electric field, while having an inverse relationship with distance.

3 Experiment Analysis

4 Procedure

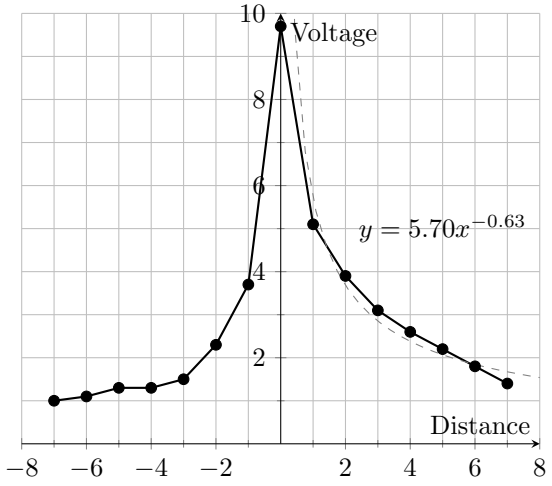
5 Data and Graphs

[**Table 1.1**] Part 1: Single Point Charge in a 0V Ring

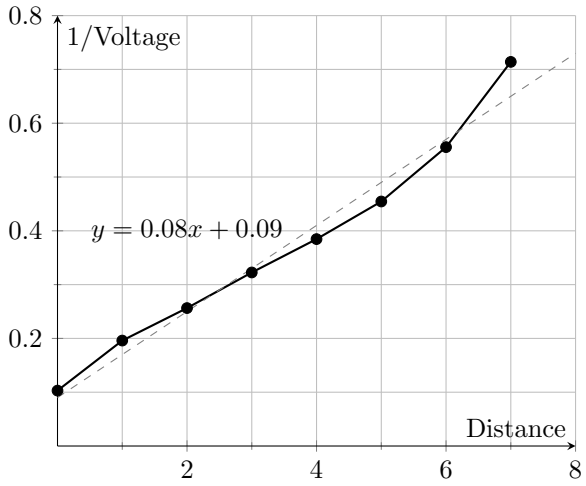
Distance (cm)	**Voltage (V)**
-7	1
-6	1.1
-5	1.3
-4	1.3
-3	1.5
-2	2.3
-1	3.7
0	9.7
1	5.1
2	3.9
3	3.1
4	2.6
5	2.2
6	1.8
7	1.4

[**Table 1.2**] Table 1.1 With Inversed Voltage

Distance (cm)	**1/Voltage (1/V)**
0	0.103
1	0.196
2	0.256
3	0.323
4	0.385
5	0.455
6	0.556
7	0.714



[**Fig 1.1**] Table 1.1 visualized in a graph.



[**Fig 1.2**] The linearization of Fig 1.1.

6 Results

7 Questions

8 Conclusion