Flipped Classroom | Video | **https://youtu.be/EByc9hW70kg**

1. Find an Electric field.

Do Now | Video | https://youtu.be/UGIPasswNIM
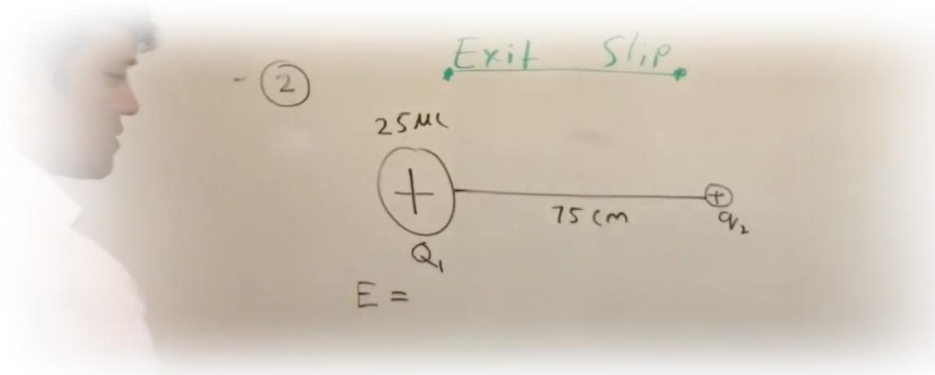
(1a) Use the picture above to explain Ohm's Law.

(1b) If we were to increase voltage, what would happen to the current in a circuit?
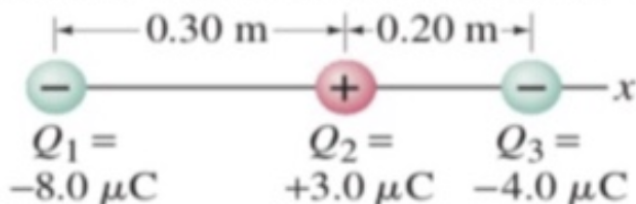
(1c) How can we describe the relationship between current and resistance?

2. Two positive charges, 1C and 1 μc are separated by 3 meter. Find the electric force between them.

3. Calculate the magnitude and direction of the electric field at point charge/test charge which is 3 meter away from a source charge (1C).

4. Use the information from Question 2 to calculate the magnitude and direction of the electric field at point charge/test charge (1 μc) which is 3 meter away from a source charge.
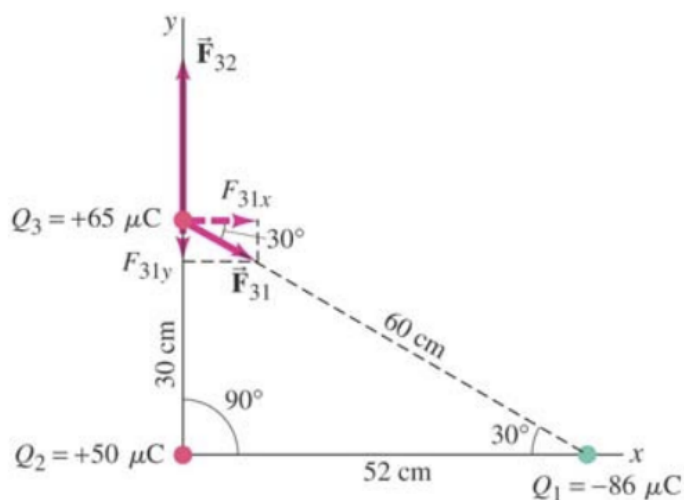
5. Three charged particles are arranged in lines. Find net electrostatic force on particle 3 due to the other two charges. Find the magnitude of the net force.

$$\leftarrow 0.30 \text{ m} \rightarrow \leftarrow 0.20 \text{ m} \rightarrow$$

$Q_1 = -8.0\ \mu C$ $\quad Q_2 = +3.0\ \mu C$ $\quad Q_3 = -4.0\ \mu C$

Big Idea | Video | https://youtu.be/8yyMOaIvfg8
Key | https://youtu.be/xH4dTApBIug
Calculate the Net electric force at Q3 due to charge on Q1 and Q2.

$\vec{F}_{32}$

F_{31x}

$Q_3 = +65\ \mu C$

$+30°$

F_{31y}

$\vec{F}_{31}$

30 cm

60 cm

90°

30°

$Q_2 = +50\ \mu C$

52 cm

$Q_1 = -86\ \mu C$

Exit Slip | https://youtu.be/JAVEMmtFKDA

Key | https://youtu.be/EByc9hW70kg
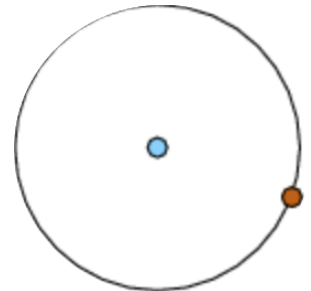
1. What is the gravitational field? What is an electric field?

2. Draw the force vector on the moon due to Earth. What type of force is it?

3. Draw the force vector on Electron due to Proton. What type of force is it?

4. What this vector represent due to the presence of Q1

Homework | Video | **https://youtu.be/Qq2qYTUhWM8**

1. What is the difference between gravitational and electric fields?

2. Derive equation for both: gravitational and electric field using Newton's

    Universal Law of gravity and Coulomb's Law

3. What is a point charge?

4. What is source charge?

5. I see a charge below. How do I know what type of charge I have?

6. A charged particle is located in an electric field where the magnitude of the electric field strength is 2000 N/C. If the magnitude of the electrostatic force exerted on the particle is 0.003 newton, what is the charge of the particle?

7. The magnitude of the gravitational field strength near Earth's surface is represented by what equation?

8. An electron is released from rest in a uniform electric of magnitude 20000 N/C Calculate the acceleration of the electron and its direction.

9. Construct field lines between charges in the picture above.

10. Who invented the concept of electric field?

Key |