Webassign: all assignments will be given via web-assign at www.webassign.net . Access card must be purchased at the UCF bookstore and students should register as soon as possible **(by Thursday, 8/25).**

Username:"firstnamelastname"
Password: "physics".

Email me if you run into a problem as soon as possible: I may have to reset passwords. Note that if you had a webassign account previously your password/username has been reset.

I-Clicker: You must purchase an I-clicker for participating in in-class quizzes. You must have come to class at least once and voted on at least one question, in order to complete the registration. If you have voted on a question in my class, go to www.iclicker.com/registration. Complete the fields with your first name, last name, student ID. Your student id should be your **EmplID**. The remote ID is the series of numbers and sometimes letters found on the bottom of the back of your i-clicker remote. Please bring your remote daily starting from **8/30 (Tuesday)**.
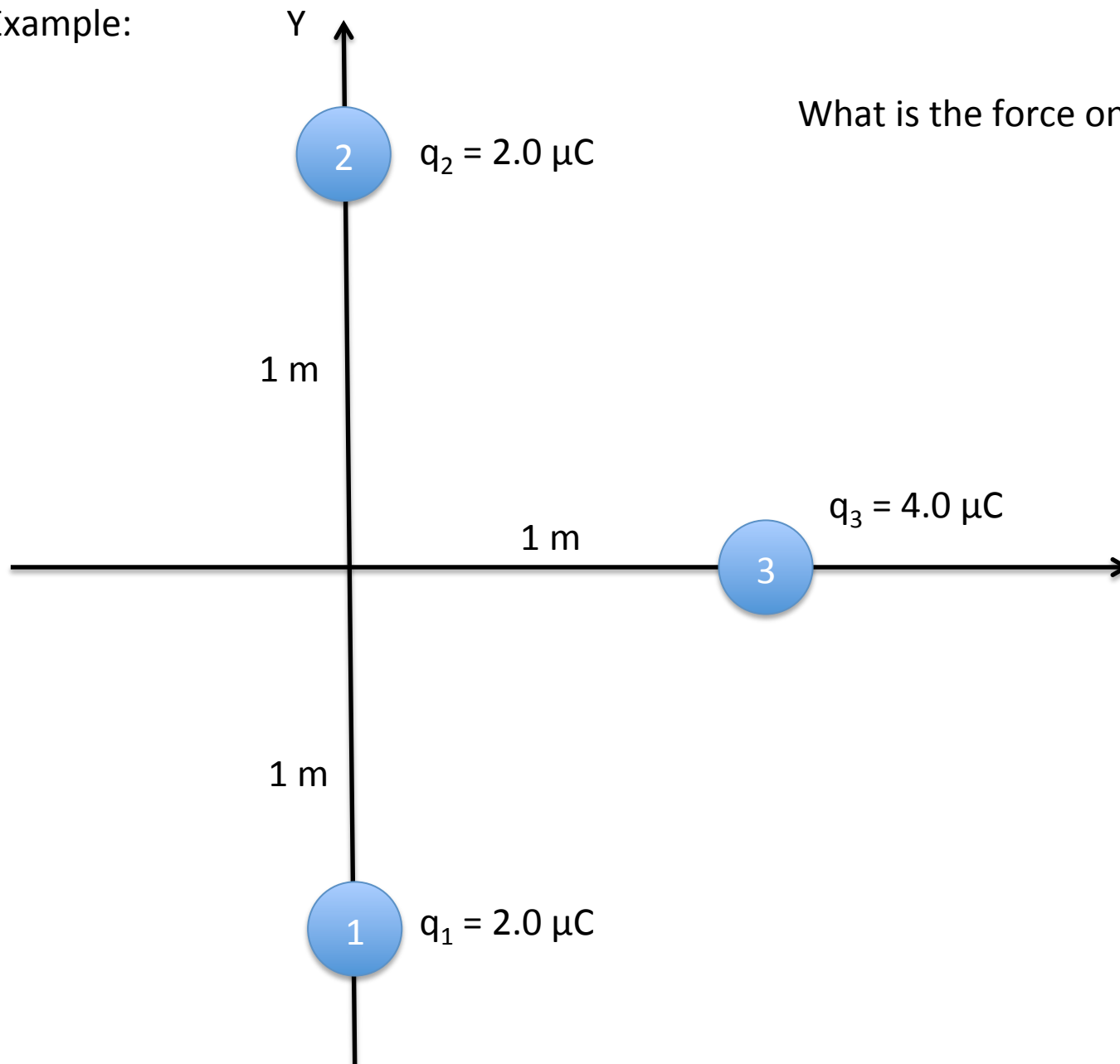
Last time: Coulomb's law

q_1 $\vec{r}_{12}$ q_2 $\hat{r}_{12}$

1   2
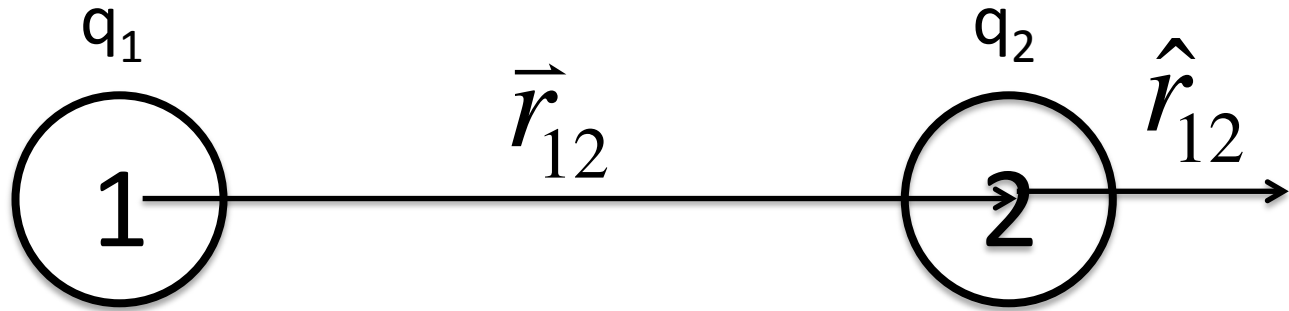
Force on 2 by 1

$$\vec{F}_{12} = \frac{1}{4\pi\varepsilon_0} \frac{q_1 \times q_2}{r^2} \hat{r}_{12}$$

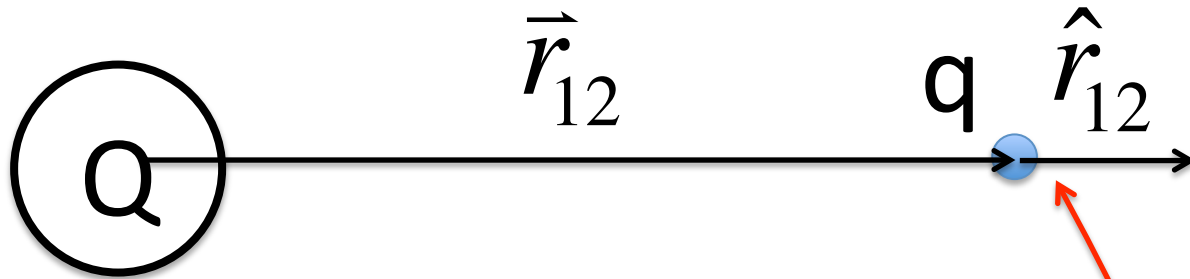$$\varepsilon_0 = 8.854 \times 10^{-12} \frac{C^2}{Nm}$$ C: Coulomb, unit for charge

Electron charge: $e = -1.6 \times 10^{-19} C$

Example:

Y

What is the force on charge 3?

2 $q_2 = 2.0 \ \mu C$

1 m

1 m

$q_3 = 4.0 \ \mu C$

3

1 m

1 m

1 $q_1 = 2.0 \ \mu C$

Electric Field

Force on q by Q

$$\vec{F}_{Qq} = \frac{1}{4\pi\varepsilon_0} \frac{Qq}{r^2} \hat{r}_{12}$$

Definition of Electric field: at this point is

$$\vec{E} = \frac{\vec{F}_{Qq}}{q} = \frac{1}{4\pi\varepsilon_0} \frac{Q}{r^2} \hat{r}_{12}$$
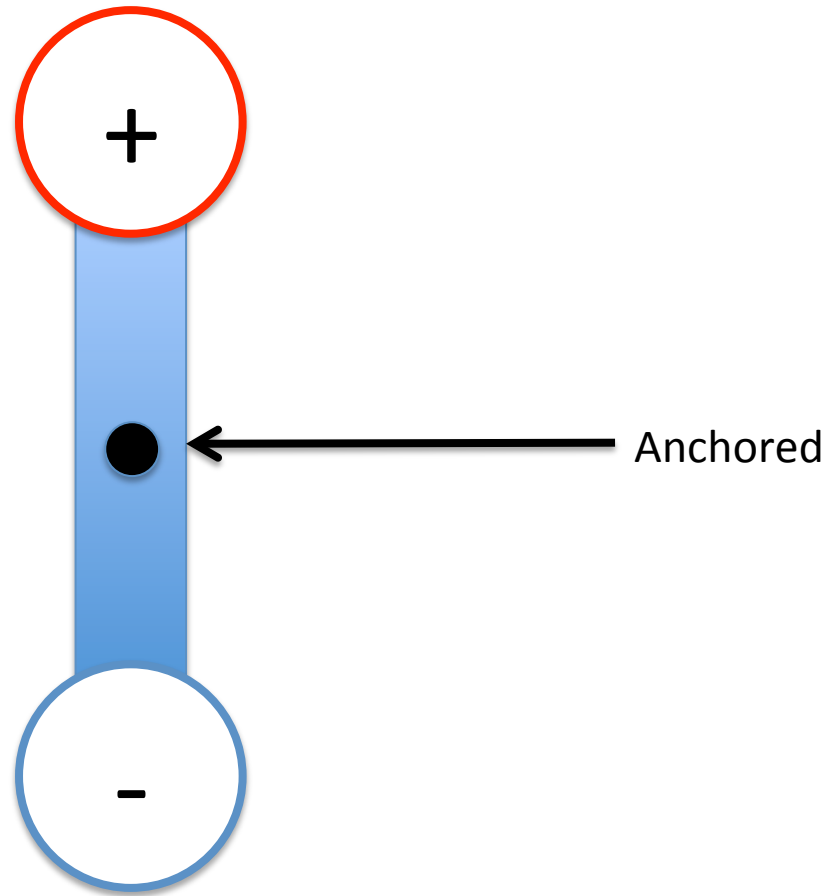
Show Active Figure 23.11

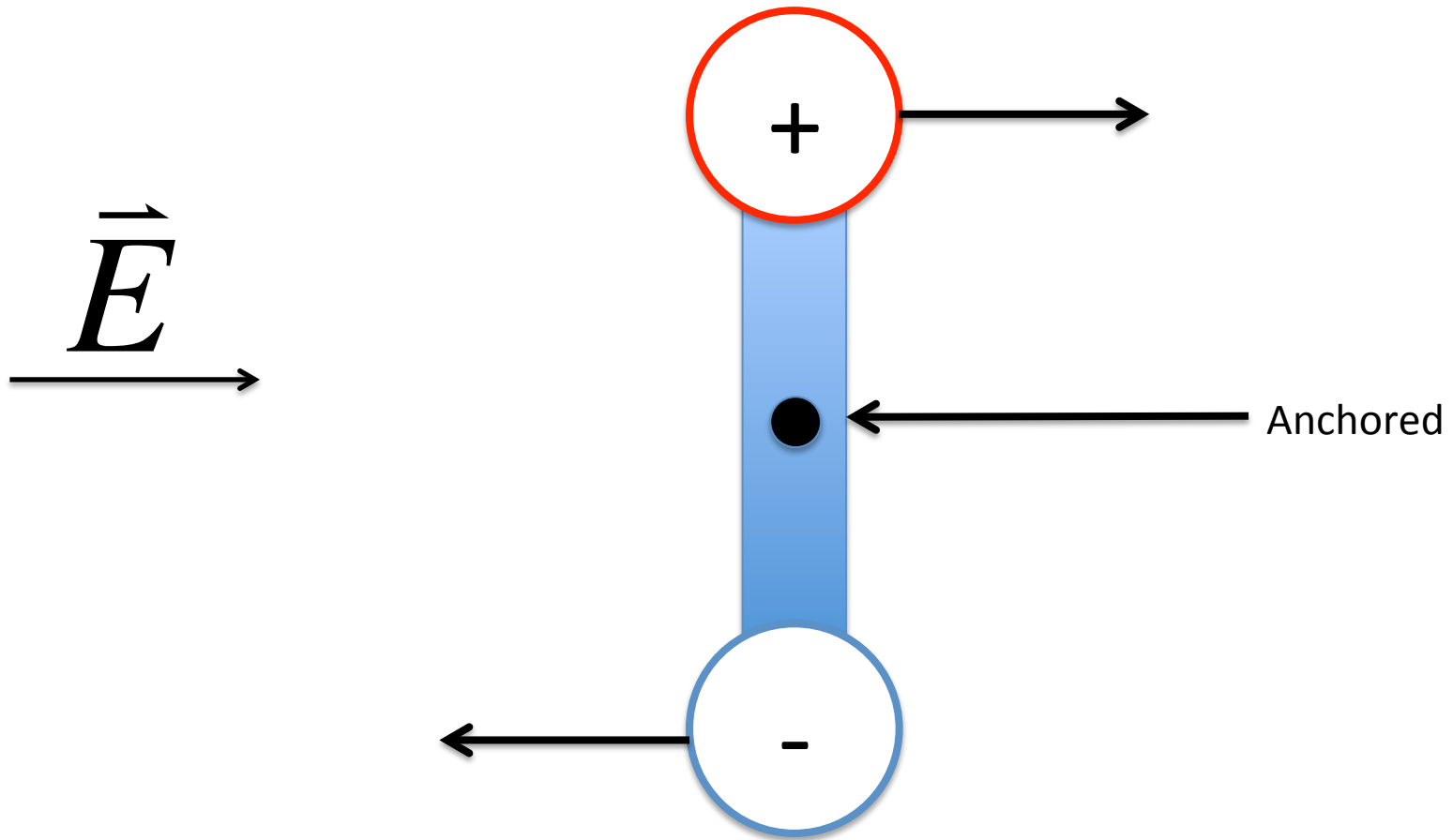Parallel plate capacitor example

Calculate electric field example
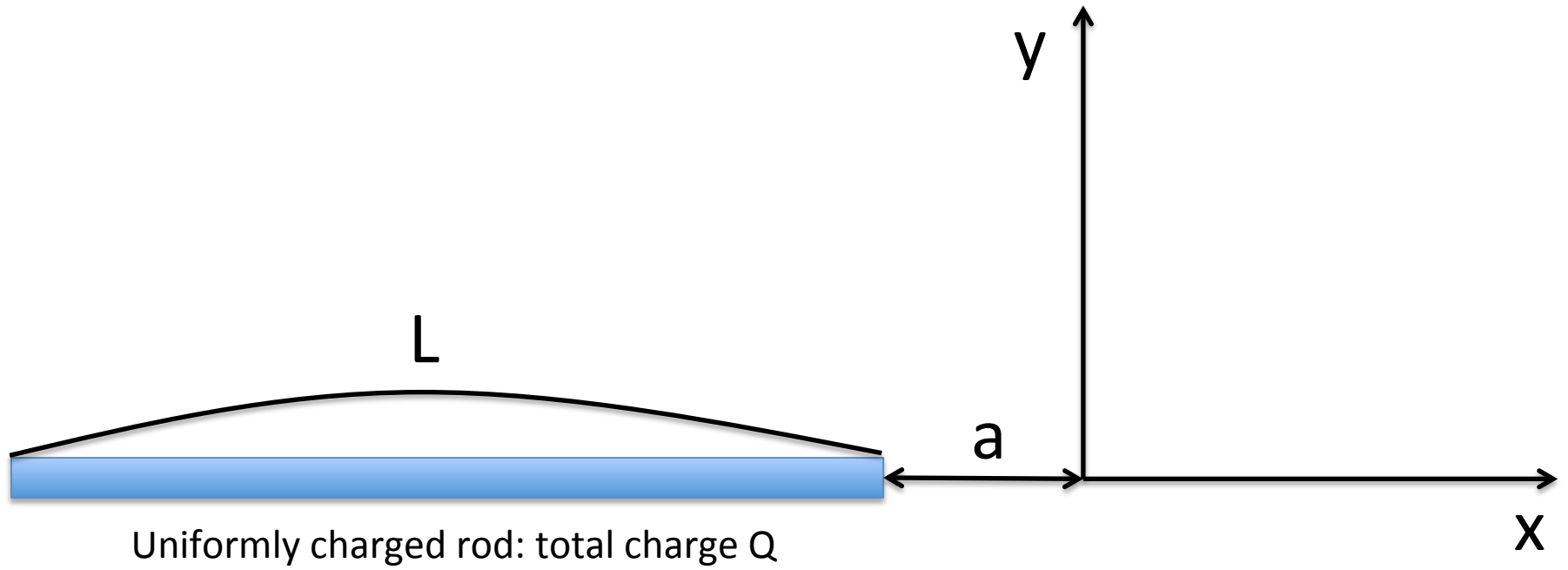
Dipole example

Electric Dipole

Electric Dipole in uniform electric field

Electric field applies a torque on electric dipole

More complex example

Uniformly charged rod: total charge Q

Infinitely long uniformly charged rod

y

d

x

Charge per unit length: λ