

Electrostatics Handout

D.) Conservation of Charge – net _____ of closed system _____

ex. If 2 charges are brought together their combined charge is _____

Before contact-

After contact -

*** Total _____ = total _____ after

E.) Elementary Charge - _____

Charges come in _____ of _____ Coulombs

Proton $+1.6 \times 10^{-19} \text{ C}$: Ref. Electron $-$ _____ C : Ref.

How many _____ are there in an object with a charge of $-9.6 \times 10^{-19} \text{ C}$?

Answer _____

Coulombs Law – Calculating the forces between two fixed point charges

F - _____ force of attraction or repulsion

(Newtons) $F =$ _____

q - _____ of each object

r - _____ between objects

(On _____) **k**- electrostatic constant = _____

Ex) What is the electrical force between 2 very small objects located .5m apart when the charge on one object is $4 \times 10^{-8} \text{ C}$ and the charge on the second object is $6 \times 10^{-5} \text{ C}$?

Relationships- F/r _____ F/q _____

Two charges attract each other with a force of F . If one charged was **doubled** and the other charged was **tripled**, how would that change the attractive force between these charges?

G.) Electric Field - region in space where electric forces act on charges

1.) vector quantity - _____

2.) $E =$ _____

$E =$ _____ (N/C)

$q =$ amount of _____ used to test field (C)

$F =$ _____ on charge in that field (N)

3) Direction of an electric field is drawn to show how the field acts on _____ (Decided by convention)

Electric Field Patterns

a) _____ charge b) _____ charge

_____ Fields

*** Field within charge = _____

b) 2 opposite charges

d) 2 like charges

c) Between positive and neutral charge