

Physics 2321. Electricity and Magnetism

Quiz 1.

Name: _____

1. (1pts) The smallest measureable amount of charge is the _____.
2. (1pts) A charged balloon will be attracted to an electrically neutral wall because of a process called electrostatic _____.
3. (1pt) A fundamental difference between the way the electrostatic force works and the way gravity works is that gravity only exhibits attraction between two objects, while the electrostatic force exhibits _____ and _____.
4. (1pts) A proton is positioned on the x-axis at $x=0$. Which charge will exert the *smallest* force on the proton?
 - (a) $+5 \mu\text{C}$ at $x = 0.1\text{m}$
 - (b) $-2 \mu\text{C}$ at $x = 0.001\text{m}$
 - (c) $-25 \mu\text{C}$ at $x = 1.0\text{m}$
 - (d) $+100 \mu\text{C}$ at $x = 10\text{m}$
5. (1pts) In Fig 1, which direction does the force on the 'grey' charge point? (The charges have units of μC , and the distance from the grey charge to the negative charge is $1/2$ of the distance between the two 'white' charges.)
 - (a) down
 - (b) up
 - (c) the net force would be 0
 - (d) right
 - (e) left

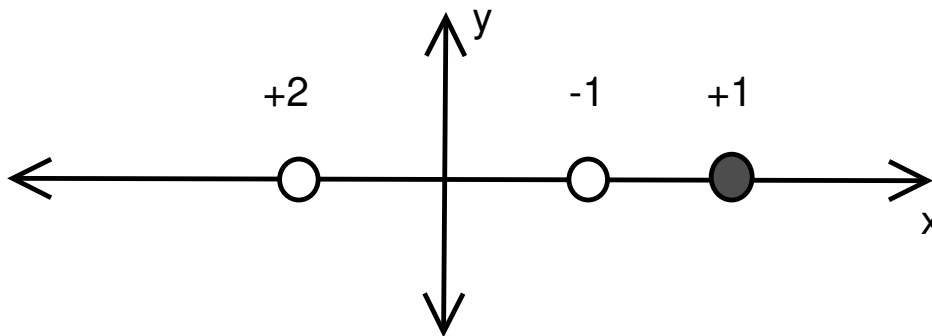


Figure 1: Charges on a line

6. (1pt) What would be the force on a 100 kg satellite with a net charge of 2 Coulombs if the only force it feels is from a meteoroid 8400 m away with a 4 Coulomb charge. ($K_c = 9 \times 10^9 \text{ Nm}^2/\text{s}^2$)
 - (a) 10^{36} N
 - (b) 1020 N
 - (c) 980 N
 - (d) 580 N
 - (e) 10.2 N