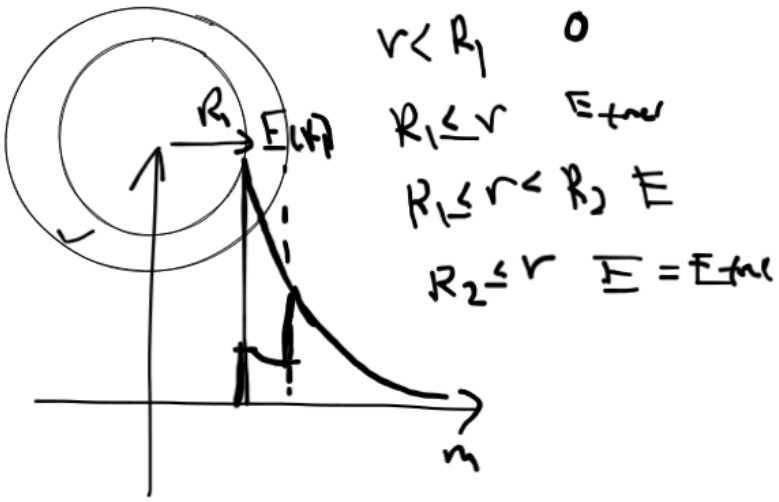
Test 1 Revision



1. $900\mathrm{Vm}\frac{1}{r^2}\quad[\frac{V}{m}]$

2. $C = 4\pi\epsilon_0 R$

3. Electrostatic energy of a charged metal object is: $E = \frac{1}{2}QU$

4. The shape determines the C.

5. If sferes are connected they proceed to have the same voltage and charges balance out in accordance with the capacitance (shape of the shperes). Bigger spheres attract more charges.

6. The principal of vritual work:

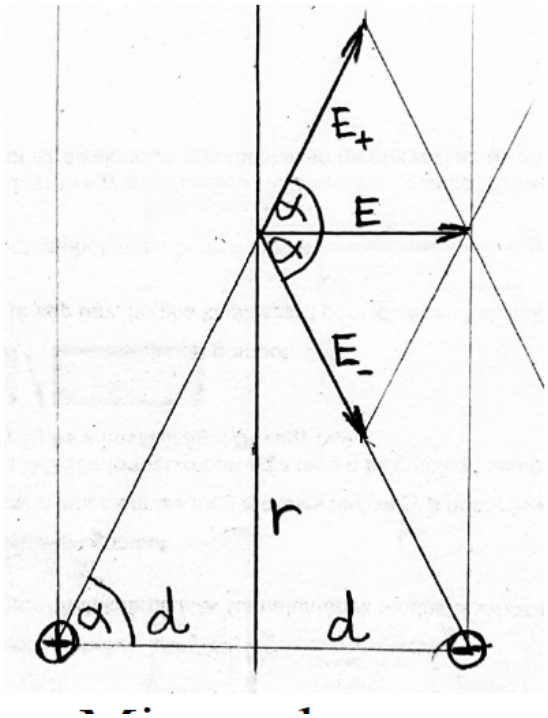
   $$F = \frac{dE_{pot}(x)}{dx}$$

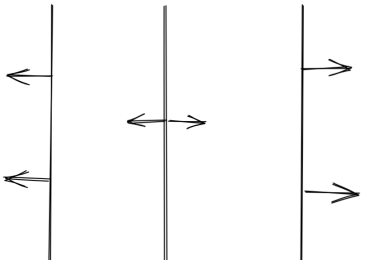
   In a paralel plate capacitor the the E_{pot} changes with respect to x because the capacistance of the charge changes changes with respect to x.

7. Pulling tension: $\sigma = \frac{F}{A}$

8. Energy desity $\frac{E_{pot}}{V}$

9. Electrostatic mirror (Electric filed perpendicular)



10.  Forces in 3 wires

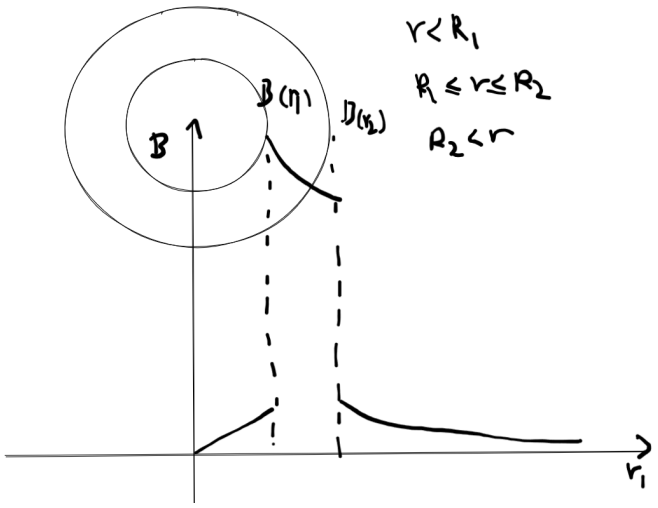
11. $[J = QV] \implies [J = \frac{1}{1.6*10^{-19}} eV]$

12. The magnetic files on a wire and loop:

$$H_{wire} = \frac{I}{2\pi R} \qquad H_{loop} = \frac{I}{2R}$$

13. $\mu_{copper} \approx \mu_o$

14. $[T = \frac{Vs}{m^2}]$

15. 

16. Henry $= [\frac{Vs}{A}]$

17. $\mu = [\frac{Vs}{Am}]$

18. $$U_{turn} = -M\frac{di}{dt} = -\frac{d\Phi}{dt} \qquad U_{coil} = NU_{turn}$$

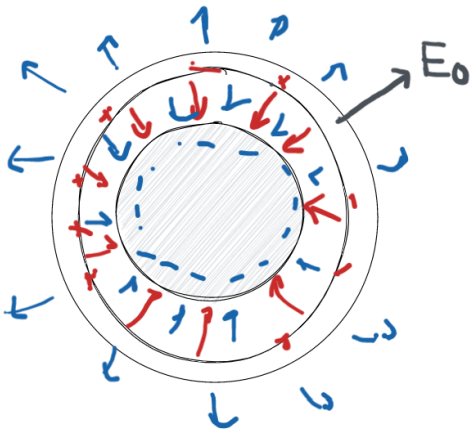
19. $[H = \frac{A}{m}]$

20. M is how much they effect each other and H how much they effect themself

21. $m = NIA$

22. $\vec{\tau} = \vec{m} \times \vec{B}$

23. $mean(\sin^2(wt)) = 1/2$

24. 

Electric Filed inside materials is 0.