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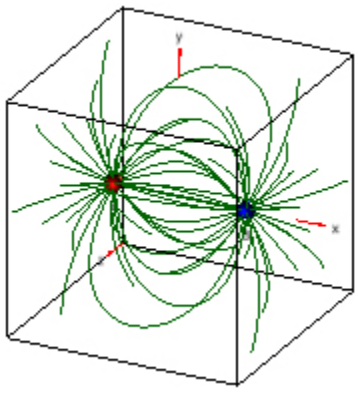
Final Proposal

For my final proposal I would like to prove an equation from chapter 3. The equation and the problem itself is problem 3.36 on page 160. It asks to show that the electric field of a given perfect dipole can be written in coordinate form. I tried to take your advice and do a problem with a dot or exclamation point.

As I work to solve this I know that I will be needing to use equation 3.101 from the book. In addition to this equation I could be working directly from a potential equation. So then I would be making use of the gradient of V.

As I think this problem out I would reason that this equation could help experimentalists in the sciences for detection of certain particles. For example since this is dealing with a perfect dipole we could use this concept for building some sort of a machine that can detect charges or charge disturbances. Since the dipoles are perfect that means that they are 2 very large charges separated by radius of r. So this can be pictured by the figure below.



So let's say a random particle moves through this area. If that is so and if that particle carries a charge then it will disrupt the perfect dipole because the charge on a random particle

will be attracted and repelled to either of the charges. We would know random particles have occurred by the electric field of the dipole being disrupted by the addition of a new charge.

All of this is just one, loosely thought of, use of the equation to the real world. The point of the final will be to solve the proof first and foremost but I will try to bring this or different examples up in the presentation for the final.