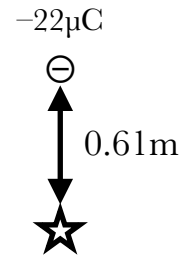


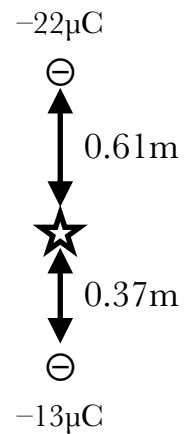
Physics 102 Homework # 10

not to be turned in!

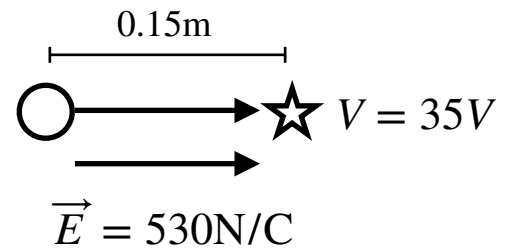
1. What is the electric field 0.61m below a $-22\mu\text{C}$ negative charge? Give the magnitude **and direction**, please.



2. Now suppose we add a $-13\mu\text{C}$ charge 0.37m below the star. What is the electric field at the star now?

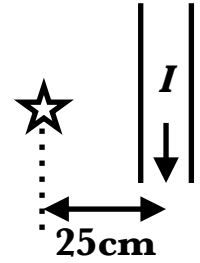


3. A star and a circle are 0.15m apart. The potential at the star is $V = 35\text{V}$. The electric field between the two shapes is 530N/C . What is the potential at the circle?

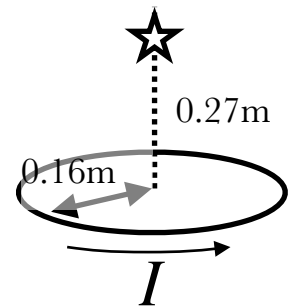


4. Referring to the same picture: if I place a $+24\mu\text{C}$ charge in between the circle and the star, what is the force the charge feels due to the electric field? Include magnitude **and direction**, please.

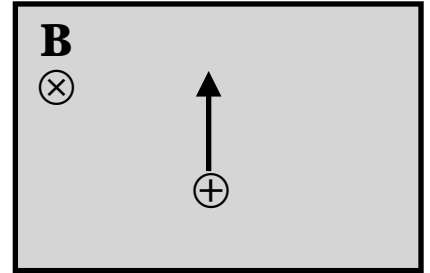
5. What is the magnitude of the magnetic field at the star, if the current in this long, straight wire is $I=0.37\text{A}$?



6. This circular loop of wire has a radius of 0.16m , and carries a current of 0.45A counter-clockwise (as seen from above). What is the magnetic field (**magnitude and direction**) at the star, a distance of 0.27m above the center of the circle?



7. The grey area contains a magnetic field of $3.9 \times 10^{-2}\text{T}$ which points into the page. A $+47\mu\text{C}$ charge with a mass of $2.5 \times 10^{-9}\text{kg}$ is moving at 350m/s upward. What is the force (*magnitude and direction*) on the charge due to the magnetic field?



8. In the picture above, the charge will start spinning in a circle. What will be the radius of the circle? And will the charge spin clockwise \curvearrowright or counterclockwise \curvearrowleft ?