



SN: _____, Name: _____

Chapter 23-24, Serway; **ABSOLUTELY NO CHEATING!**

Please write the answers on the blank space or on the back of this paper to save resources.

- Three point charges are arranged as shown in figure P23.9. Find (a) the magnitude and (b) the direction of the electric force on the particle at the origin.

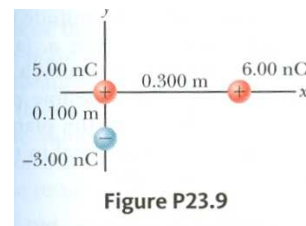


Figure P23.9

- Four charged particles are at the corners of a square of side a as shown in Figure P23.25. Determine (a) the electric field at the location of charge q and (b) the total electric force exerted on q .

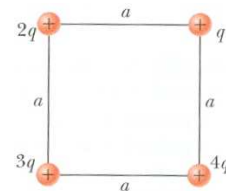


Figure P23.25

- A uniformly charged insulating rod of length 14.0cm is bent into the shape of a semicircle as shown in figure P23.35. The rod has a total charge of $-7.50\mu\text{C}$. Find (a) the magnitude and (b) the direction of the electric field at O, the center of the semicircle.



Figure P23.35