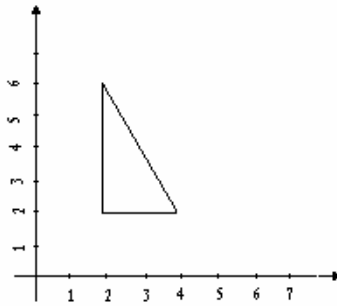
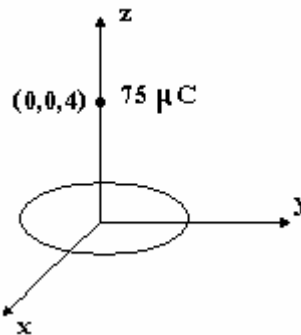


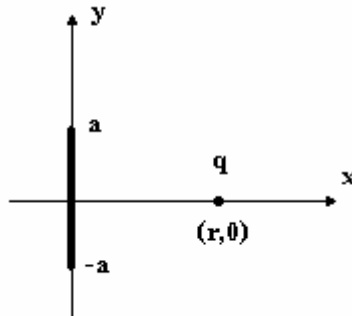
1) Find the total charge on the triangle of figure ,given surface density $\rho_s = 6xy(c/m^2)$.



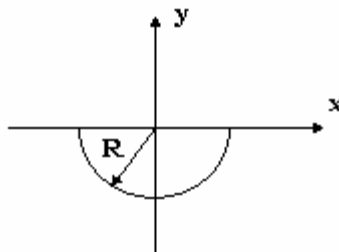
2) A circular disk of radius 3m carries a uniformly distributed charge of $450\pi \mu C$. Calculate the force on a $75 \mu C$ charge located on the axis of the disk and 4m from its center.



3) In figure the segment $-a \leq y \leq a$ carries charge of uniform density ρ_l . Calculate the force on the charge q .



4) A charge Q is uniformly distributed over a wire in the form of a semicircle of radius R , as shown in figure. Determine the electric field at the origin.



5) For $\vec{E} = 2xz^2\hat{a}_x + 2z(x^2 + 1)\hat{a}_z$ find field line that passes from (1,3,-1).

6) In the free space there is a volume charge as :

$$\rho = \begin{cases} \rho_0 \frac{r}{a} & r \leq a \\ \beta\rho_0 & a \leq r \leq 2a \\ 0 & r \geq 2a \end{cases}$$

Calculate:

- Electric field and electric potential in all over the space.
- Electrical flux goes out from half sphere of radius $\frac{3a}{2}$ and centered at origin.