

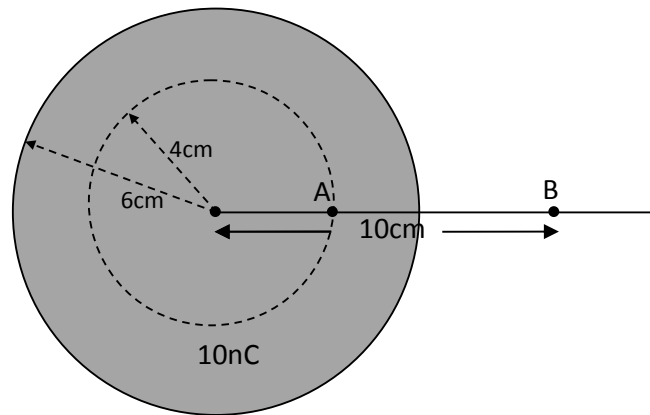
Name: \_\_\_\_\_

PHY 232 Summer 2016 Class Work  
Class 7. More Gauss's Law and Electric Potential

Given  $\epsilon_0 = 8.8542 \times 10^{-12} \text{ C}^2 \text{ m}^{-2} \text{ N}^{-1}$  and  $\frac{1}{4\pi\epsilon_0} = 8.9876 \times 10^9 \text{ C}^{-2} \text{ m}^2 \text{ N}^1$ .

Consider an *insulating solid* sphere of 6cm in radius. It is *uniformly charged* to a total charge of 10nC.

(a) Calculate the charge density, in  $\text{Cm}^{-3}$ , of the sphere.



(b) Calculate the charge enclosed by a 4cm concentric sphere (dotted line).

(c) Calculate the electric field at point A.

(d) Calculate the electric field at point B by using Gauss's Law.