SP212-Spring-2016

CH-23-A Assignment

First do the following Wiley-Plus assignment: Assignment #23a

After completing the Wiley-Plus, in your homework notebook, complete the following problems:

CH23 Question # 1 and 4

CH23 Problems # None Assigned this assignment

To check your work, the answers to the odd problems are in the back of the book.

The answers to the even problems are:

None Assigned this assignment

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Homework

Then complete the attached worksheets: (Note: the above problems were designed to
ensure you have the skills to solve the worksheet problems. It is imperative to your
learning of the problem solving technique to do the above problems BEORE
attempting the worksheet problems. You are graded on both! Homework notebooks are
graded.)
For each of the equations below,

1) State what each term is in your own words ...
2) What the units of each term are...
3) What is the general use of that equation in your own words?

**A.** \[ \Phi_E = \int \vec{E} \cdot d\vec{A} \]

**B.** \[ \varepsilon_0 \oint \vec{E} \cdot d\vec{A} = q_{enc} \]
An opaque cube that is 0.20 m on a side is oriented with its edges along the axes of a Cartesian coordinate system has an unknown net charge inside of it. The electric field everywhere on the surface of the cube is \( \vec{E} = (1.0\hat{i} - 2.0\hat{j} + 3.0\hat{k}) \frac{N}{C} \). **What is the net charge enclosed in the cube?**

**Show all work:**
CH-23-A-3:

The solid circle represents the cross section of a spherical Gaussian surface. There are charges of +3.0 C and −1.0 C outside the Gaussian surface and +2.0 C and −5.0 C inside the Gaussian surface as shown. **What is the net (total) electric flux through the Gaussian surface?**

*Show all work* including vector diagrams!
A spherical conducting shell has a total charge of -12.0 μC. In addition, a +6.0 μC charge is placed at the center of the shell’s cavity. **What is the net electric flux through the Gaussian surface shown in the figure?**

Show *all work:*