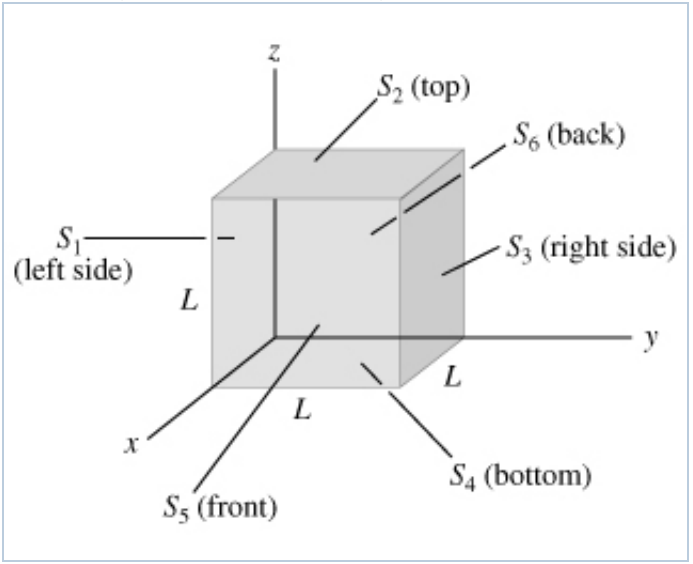
**HW due 6/1**

**Due: 7:00am on Wednesday, June 1, 2016**

To understand how points are awarded, read the Grading Policy for this assignment.

## Problem 22.34

A cube has sides of length $L$ = 0.310 m . It is placed with one corner at the origin as shown in the figure . The electric field is not uniform but is given by $\vec{E} = (\text{ -5.83 N/(C} \cdot \text{m)}\ )x\hat{i} + (\text{ 2.03 N/(C} \cdot \text{m)}\ )z\hat{k}$.




### Part A

Find the electric flux through each of the six cube faces $S_1, S_2, S_3, S_4, S_5$, and $S_6$.

**Enter your answers in ascending order separated by commas.**

ANSWER:

$\Phi_1, \Phi_2, \Phi_3, \Phi_4, \Phi_5, \Phi_6$ = 0,6.05×10$^{-2}$,0,0,-0.174,0 $(\text{N/C}) \cdot \text{m}^2$

**Correct**

### Part B

Find the total electric charge inside the cube.

ANSWER:

$q$ = −1.00×10$^{-12}$ C

**Correct**

## Exercise 23.2

A point charge $q_1$ is held stationary at the origin. A second charge $q_2$ is placed at point $a$, and the electric potential energy of the pair of charges is $+5.4 \times 10^{-8}$ J. When the second charge is moved to point $b$, the electric force on the charge does $-1.9 \times 10^{-8}$ J of work.

### Part A

What is the electric potential energy of the pair of charges when the second charge is at point $b$?

**Express your answer using two significant figures.**

ANSWER:

$7.3 \times 10^{-8}$ J

**Correct**

**Score Summary:**

Your score on this assignment is 100%.
You received 10 out of a possible total of 10 points.