

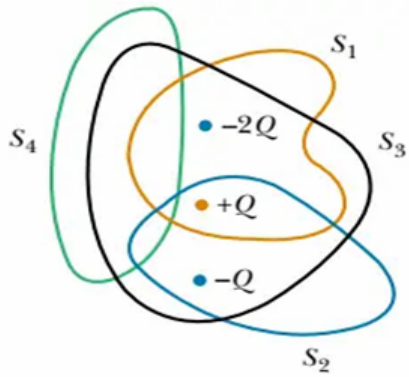


ASSIGNMENT NO.3 (Electric Field and force)
27th November 2024

Course Code: NS(1001)	Course Name: Applied Physics
Instructor Name	Muhammad Rahim
Student Roll No & Section	Submission deadline 02-12-2024

Instructions for Submission:

- *Soft copy only*
 - *You are required to Submit the Assignment in softcopy on Google Classroom.*
 - ***Strictly follow the deadline***
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1. Two point charges are located on the positive x-axis of a coordinate system. Charge $q_1=3.0\text{nC}$ is 2.0cm from the origin, and charge $q_2=-7.0\text{nC}$ is 4.0cm from the origin. What is the magnitude and direction of resultant force exerted by these two charges on third point charge $q_3=5.0\text{nC}$ located at the origin?
 2. A point charge $q_1=2.0\text{ uC}$ is located on the positive y-axis at $y=0.3\text{m}$, and an identical charge q_2 is at the origin. What is the magnitude and direction of resultant force exerted by these two charges on third point charge $q_3=4.0\text{uC}$ located at positive x-axis at $x=0.40\text{m}$?
 3. In the figure below, a configuration of four closed surfaces and three charges of $-2Q$, $+Q$, and $-Q$ is shown. What is the electric flux through each surface?



4. Two equally charged particles are held $3.2 \times 10^{-3} \text{ m}$ apart and then released from rest. The initial acceleration of the first particle is observed to be 7.0 m/s^2 and that of the second particle to be 9.0 m/s^2 . If the mass of the first particle is $6.3 \times 10^{-7} \text{ Kg}$, what are (a) the mass of the second particle and (b) the magnitude of the charge of each particle ?
5. Two small, positively charged spheres have a combined charge of $5.0 \times 10^{-5} \text{ C}$. If each sphere is repelled from the other by an electrostatic force of 1.0 N when the spheres are 2.0 m apart, what is the charge on the sphere with the smaller charge?