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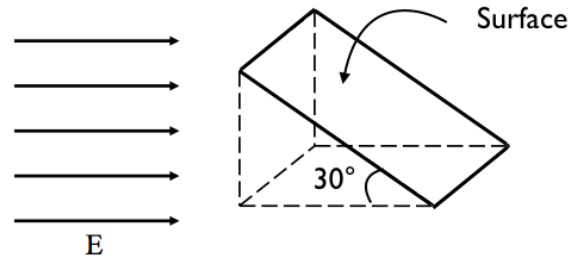
Student Number:

Physics Pre-reading – Gauss's Law

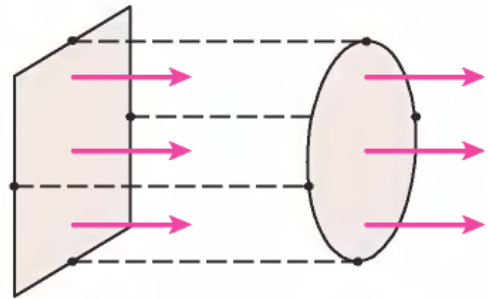
Please read chapters 27.2, 27.3 and 27.4 from Knight 3rd edition. The following questions will focus on some basic concepts you'll need for Tuesday's lecture.

Question 1

- a) An electric field of 2 N/C points to the right. Calculate the flux through a surface of area $A = 4 \text{ m}^2$ that is tilted 30° above the horizontal as shown. Be sure to use the right angle.



- b) Does the circle have more, less, or the same flux through it as the square?



Question 2

- a) Draw a Gaussian Surface around the charge below with the same symmetry as the electric field. Label it S_1 .
- b) Draw a second possible Gaussian Surface with the same symmetry as the electric field. Label it S_2 .



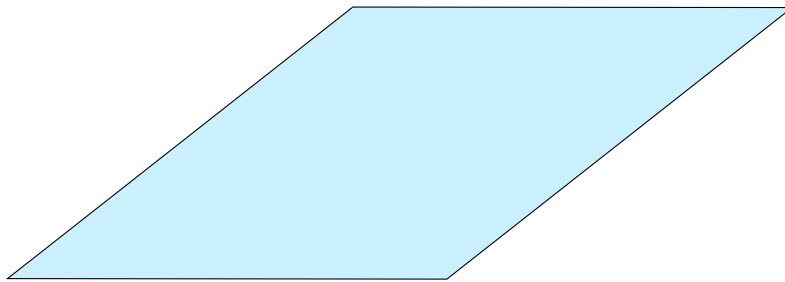
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- c) Is the electric field strength at S_1 greater than, less than, or the same as the electric field at S_2 ? Explain.
- d) Is the flux through S_1 greater than, less than, or the same as the flux through S_2 ? Explain.

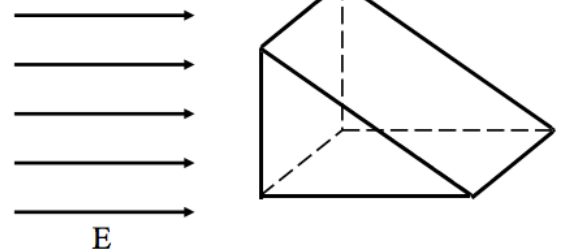
Question 3

Below is part of an infinite plane of charge. Draw a Gaussian Surface that would be suitable for calculating the electric field for this charge distribution.



Question 4

- a) Consider the closed surface in the shape of a prism that's drawn to the right. What is the electric flux through this closed surface? Explain.



- b) Could there be charge inside this surface? Explain. (*All electric fields are shown*).