

Electric Flux and Gauss's Law

- Purpose:**
1. To gain experience setting up flux integrals
 2. To gain a deeper understanding of Gauss's Law

Equipment: Pencil and paper

Procedure:

Find answers to parts (a), (b), (c) for the following electric fields.

- 1) $E_x = ax, E_y = E_z = 0$
- 2) $E_x = ay, E_y = E_z = 0$
- 3) $E_x = az, E_y = E_z = 0$
- 4) $E_x = ayz, E_y = E_z = 0$
- 5) $E_x = 4ax, E_y = 0, E_z = 3ax$
- 6) $E_x = -3ax, E_y = 0, E_z = 4ax$
- 7) $E_x = ax, E_y = ay, E_z = az$

- a) Find the electric flux out of the surface ABCD
- b) Tell why you would (or would not) expect to find a net charge in the space inside the prism represented in the figure.
- c) Sketch lines of electric flux for the fields given in 1-3 above.

