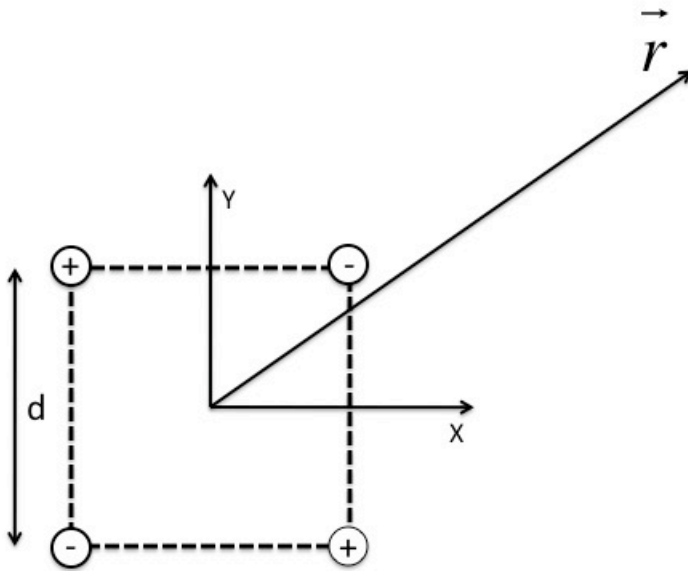Quizz #1 2049 H
You should use extra scratch paper: show all your work: staple all the answers together.
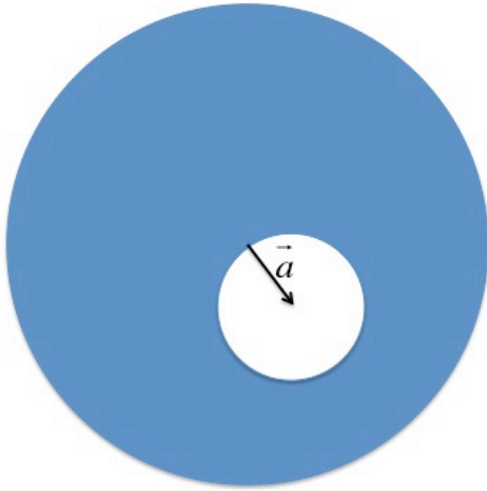
Due Feb 16th

Problem 1:

Calculate the electric field of a charge distribution as depicted below. Magnitude of all charges are q, but the signs differ. You may assume r>>d.

Problem 2

a) Consider a sphere filled with uniform charge density, ρ, except for an internal sphere which is empty. Let **a** be the vector from the center of the sphere to the center of the bubble. Calculate the vector electric field within the bubble and show that it is constant. (Hint: An empty bubble is equivalent to overlapping sphere of equal but opposite charge.)

(b) What is the surface charge distribution on a metal sphere of radius R which is in a constant external field **E** in the z direction?

Problem 3
You have an infinite lattice of resistors, all of the same resistance, R, as illustrated below. What is the resistance between point A and B?