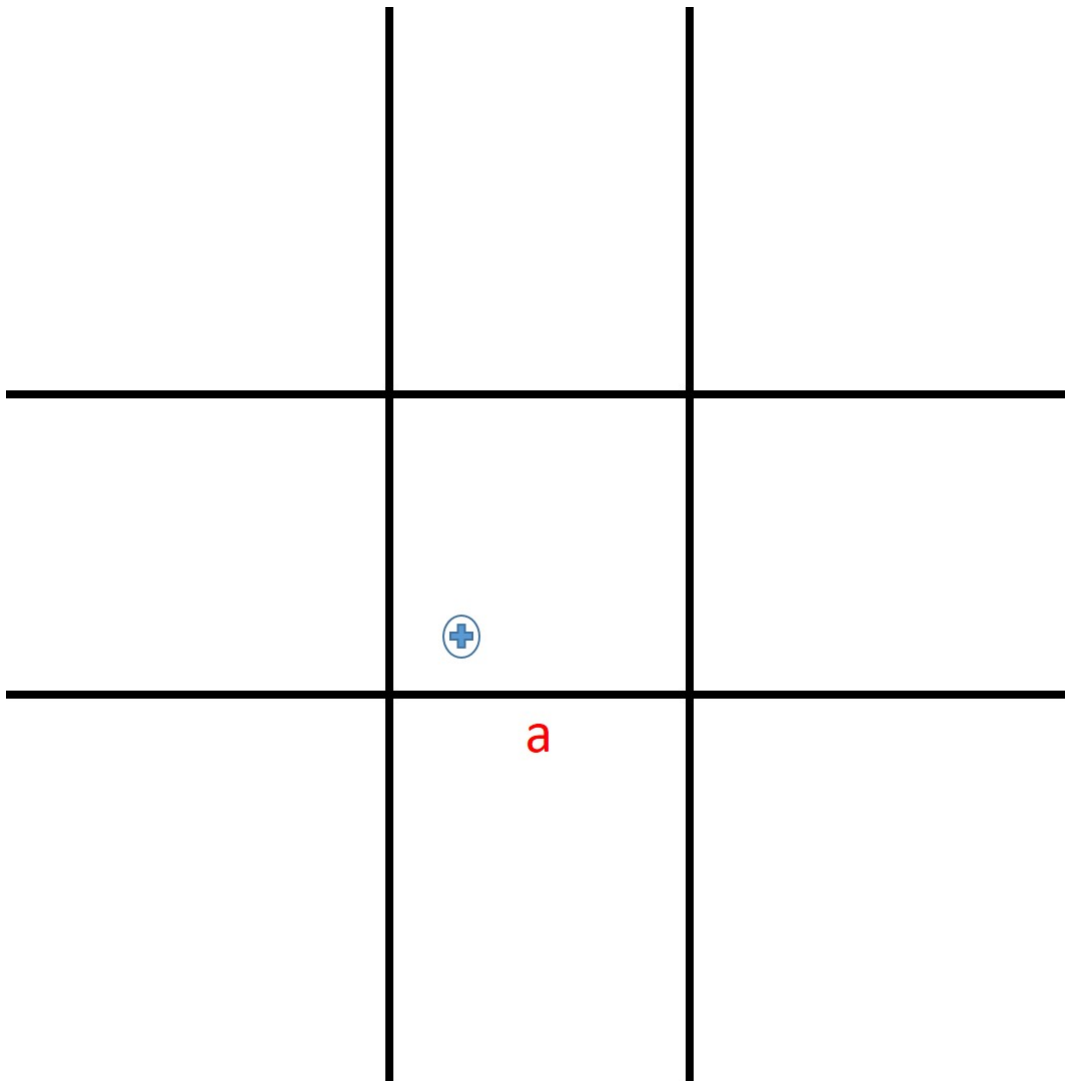Jasmin Shin
Xi Dong
Physics 841

Chapter 4: Electrostatics

Consider a set of infinitely grounded parallel planes and another set of infinitely grounded parallel planes as shown below. There is a positive charge inside the square located at (x,y). Use the method of images to find the potential of this configuration. Draw out the configuration

a

$$V = k \sum_{M,N=-\infty}^{\infty} \frac{q}{\sqrt{(x - x_0 + 2Ma)^2 + (y - y_0 + 2Na)^2}} + k \sum_{M,N=-\infty}^{\infty} \frac{q}{\sqrt{(x + x_0 + 2Ma)^2 + (y + y_0 + 2Na)^2}}$$

$$+k \sum_{M,N=-\infty}^{\infty} \frac{-q}{\sqrt{(x - x_0 + 2Ma)^2 + (y + y_0 + 2Na)^2}} + k \sum_{M,N=-\infty}^{\infty} \frac{-q}{\sqrt{(x + x_0 + 2Ma)^2 + (y - y_0 + 2Na)^2}}$$