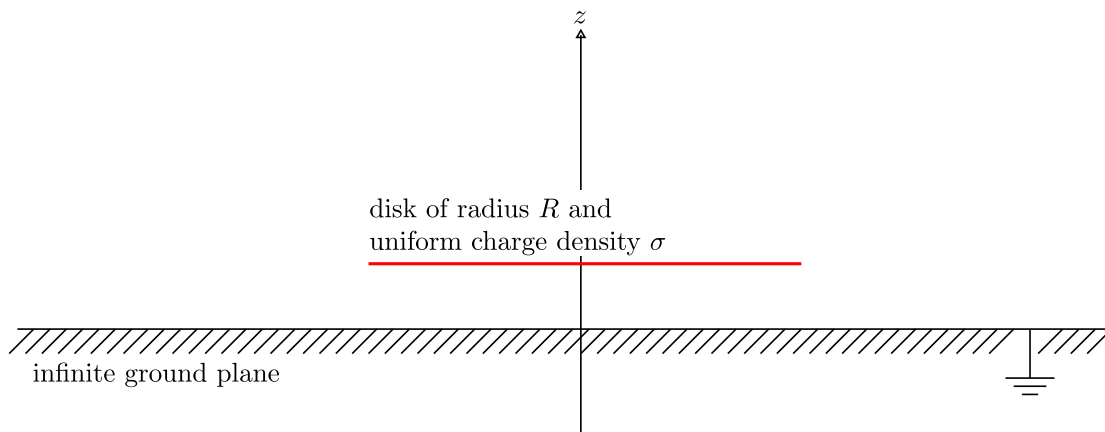


- (2^{pts}) 1. The figure below shows a side view of a circular disk of radius R a distance $z = a$ above an infinite ground plane that lies in the xy -plane. The disk is parallel to the plane and $R \gg a$. The disk carries a uniform charge per unit area $\sigma > 0$.



- (a) Using the method of images, draw an equivalent geometry of charge distributions that would give the same $V(x, y, z)$ in the region $z > 0$. (1 mark)
- (b) What kind of familiar structure does the equivalent charge distribution of (a) produce? (1 mark)

BONUS: For a point P on the z -axis at $z = a/2$ (half way between the disk and the ground plane), what is the direction and magnitude of the electric field? (1 mark)