Which of the following could be a (physical) electrostic field in the region shown?
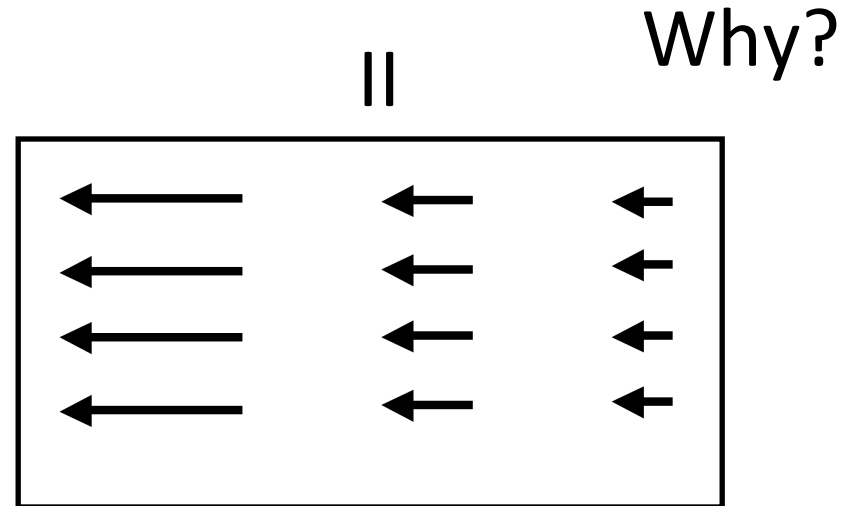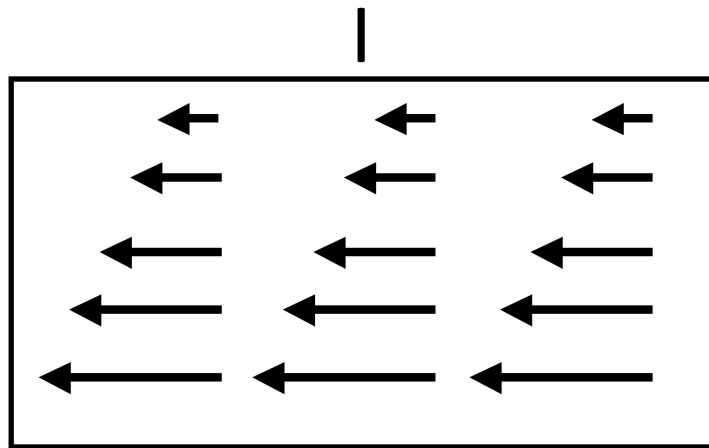
Why?

I

II

A) Both

B) Only I

C) Only II
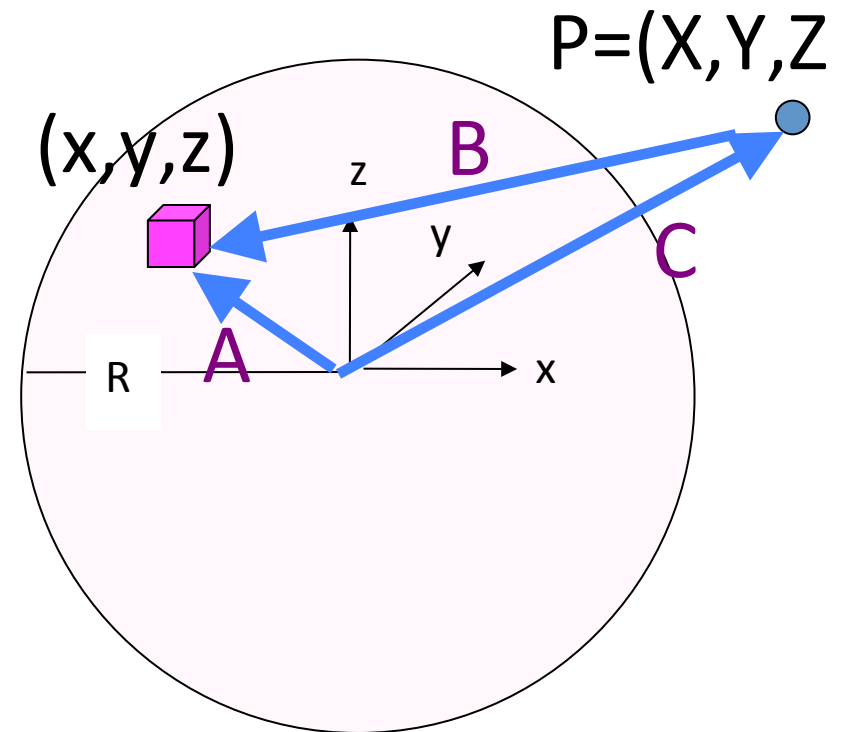
D) Neither

E) ??

To find **E** at P from a <u>negatively</u> charged sphere (radius R, volume charge density ρ),

$$\vec{\mathbf{E}} = \frac{1}{4\pi\varepsilon_0} \iiint \frac{\hat{\imath}}{\imath^2} \, \rho \, d\tau'$$

What is $\vec{\imath}$ (given the small volume element shown)?

P=(X,Y,Z

(x,y,z)

B

C

A

R

z

y

x

D) None of these

E) Answer is ambiguous

Correct vector is shown on the next page…

To find **E** at P from a <u>negatively</u> charged sphere (radius R, volume charge density ρ),

$$\vec{E} = \frac{1}{4\pi\varepsilon_0}\iiint \frac{\hat{\imath}}{\imath^2}\,\rho\,d\tau'$$

P=(X,Y,Z)

(x,y,z)

$\vec{\imath}$

z

y

R

x