

Checkpoint

Two infinite lines of charge are shown below.

• B

• A

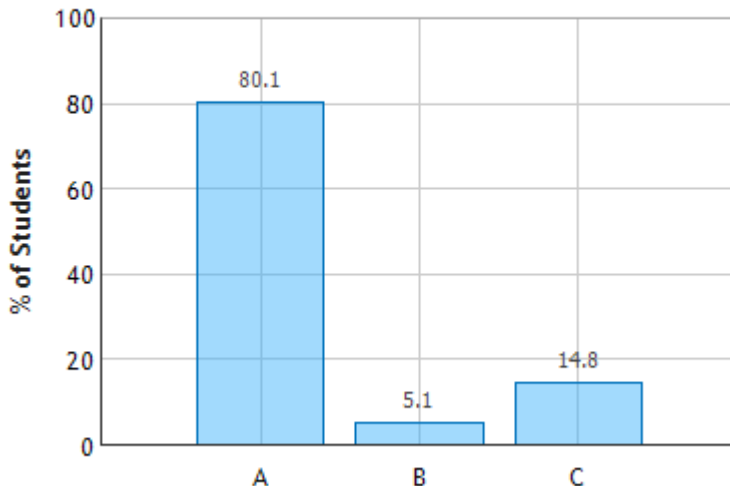
Both lines have identical charge densities $+\lambda$ C/m. Point A is equidistant from both lines and Point B is located above the top line as shown. How does E_A , the magnitude of the electric field at point A, compare to E_B , the magnitude of the electric field at point B?

$E_A < E_B$

$E_A = E_B$

$E_A > E_B$

Two Lines of Charge: Question 1 (N = 859)



A) ($E_A < E_B$) “As the electric field by both lines have equal magnitude on A but opposite directions they get cancelled out hence electric field at A=0 whereas that is not the case at B and electric field at B>0”

C) ($E_A > E_B$) “ E_A will be greater because it has two lines of charge acting on it from equal distance whereas E_B would be less because it is further from the lower line of charge.”