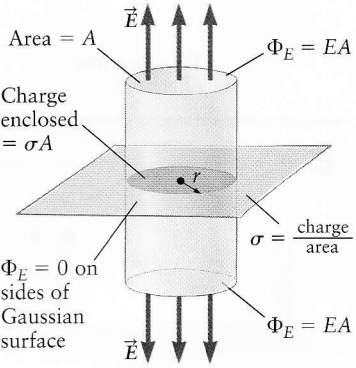
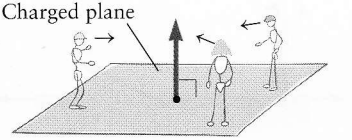


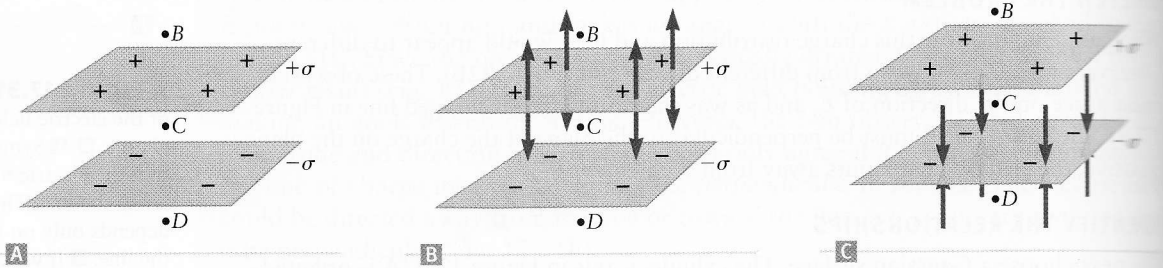
A



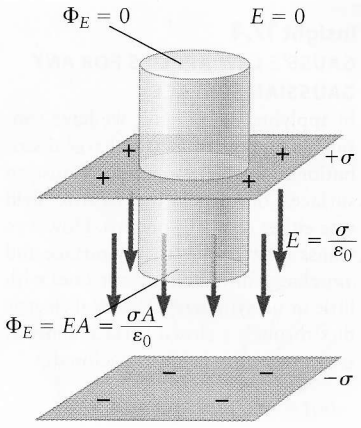
All observers must agree on the direction of $\vec{E}$, so $\vec{E}$ must be perpendicular to the plane.

B

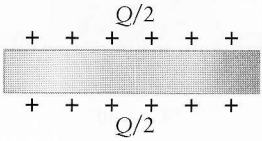
▲ **Figure 17.32** Example 17.7. A Calculation of the electric field near a charged plane. B Symmetry requires that the electric field be perpendicular to the plane.



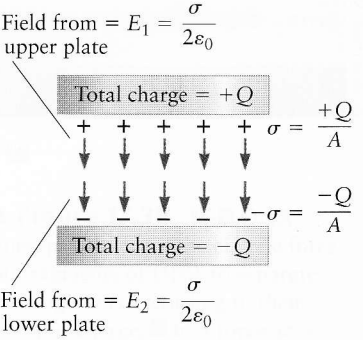
▲ **Figure 17.33** Example 17.8. A Two charged planes. For each plane, σ has the same magnitude, but the charges are of opposite sign. B Electric field due to the positively charged plane. C Electric field due to the negatively charged plane.



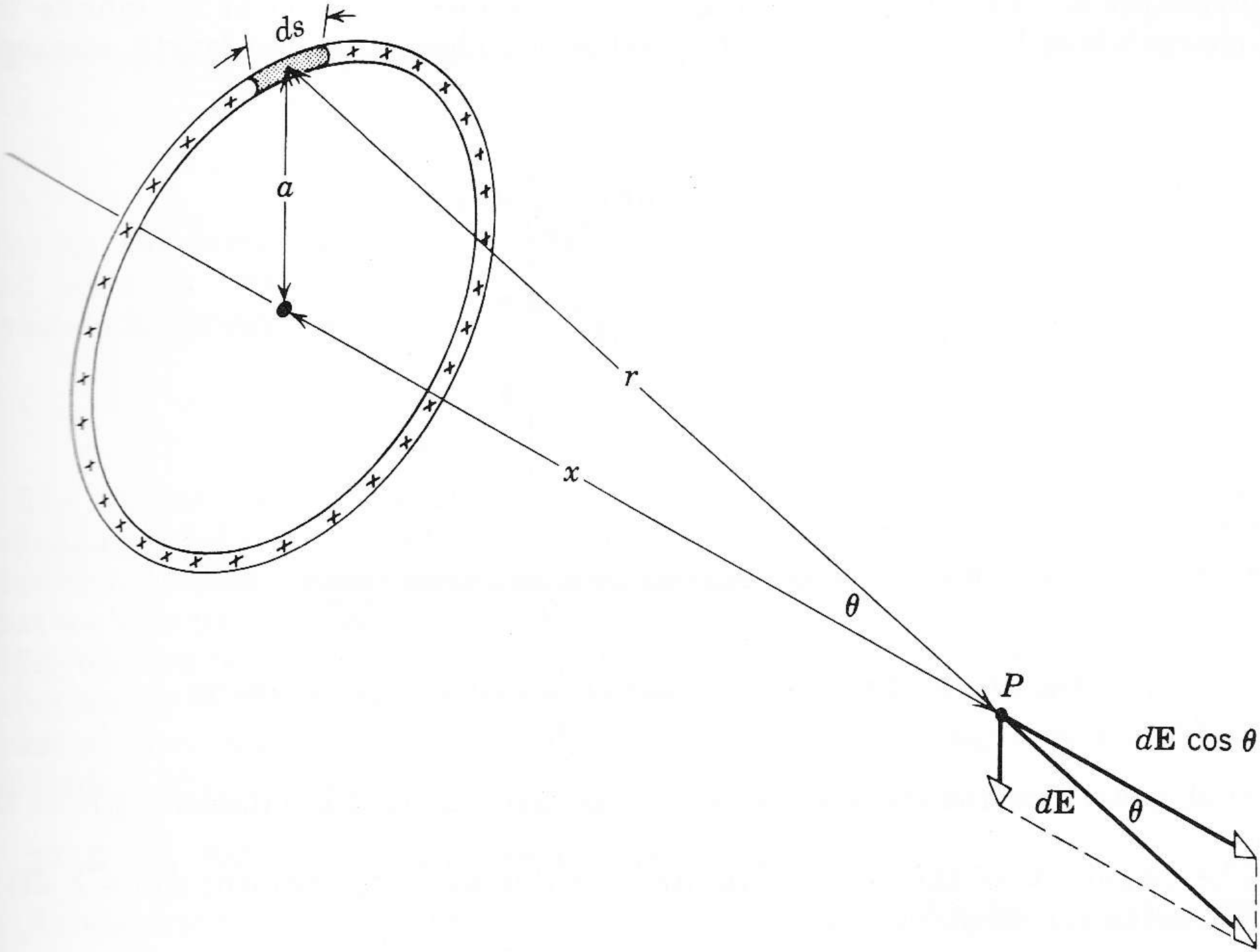
▲ **Figure 17.34** Example 17.8. Using Gauss's law to check the result for the electric field of two charged planes.



▲ **Figure 17.35** For a single thin metal plate, any excess charge is distributed evenly on the two sides.



▲ **Figure 17.36** Calculation of the electric field between two thin metal plates. This arrangement is called a parallel-plate capacitor.


ds
a
r
x
θ
P
dE cos θ
dE
θ

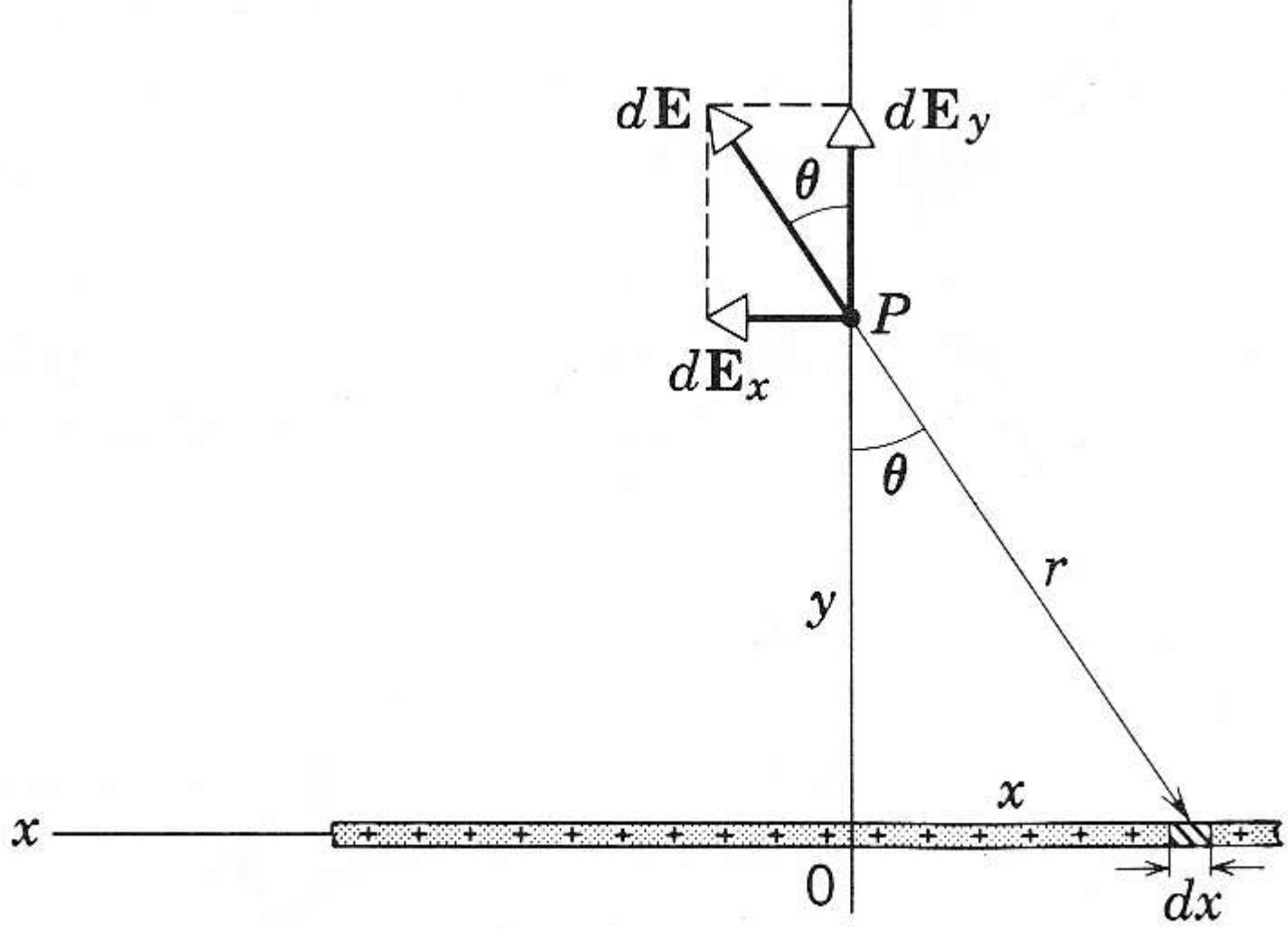


Fig. 27–11 Example 6. A section of an infinite line of charge.