

**30** Before a thunderstorm, the hairs on your head sometimes stand on end.

A hair with mass  $0.50\text{ mg}$  and charge  $1.0\text{ pC}$  is supported by a force due to an electric field. Ignore any forces other than the weight of the hair and the electric force.

What is the electric field strength?

**A**  $4.9 \times 10^3 \text{ NC}^{-1}$

**B**  $4.9 \times 10^5 \text{ NC}^{-1}$

**C**  $4.9 \times 10^6 \text{ NC}^{-1}$

**D**  $4.9 \times 10^9 \text{ NC}^{-1}$

**31** Two parallel metal plates,  $4.0\text{ cm}$  apart, are at electric potentials of  $800\text{ V}$  and  $2000\text{ V}$ . Points  $X$ ,  $Y$