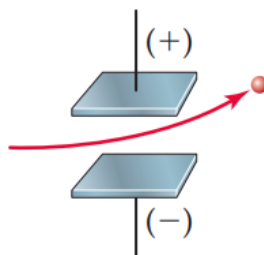


## Exercise 2.1

A charged particle moves between two electrically charged plates, as shown here.



(a) What is the sign of the electrical charge on the particle? (b) As the charge on the plates is increased, would you expect the bending to increase, decrease, or stay the same? (c) As the mass of the particle is increased while the speed of the **particles** remains the same, would you expect the bending to increase, decrease, or stay the same? [Section 2.2]

[TYPO: Replace “particles” with “particle.”]

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### Solution

- (a) Because the particle curves upward, it's attracted to the positively charged plate and repelled from the negatively charged plate. That means the particle is negatively charged.
- (b) If the charge on the plates is increased, then the force acting on the particle will increase by Coulomb's law. This will increase the bending of the particle's trajectory.
- (c) If the particle's mass is increased, then the particle's acceleration will decrease by Newton's second law. This will decrease the bending of the particle's trajectory.