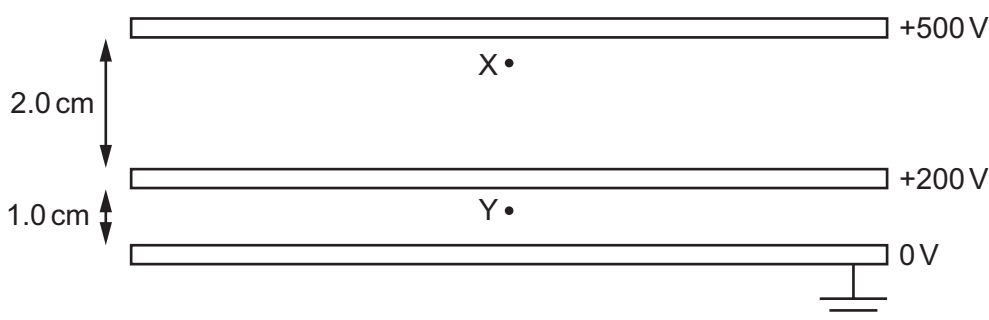


30 What is meant by electric field strength?

- A force per unit charge acting on a small mass
- B force per unit charge acting on a small positive charge
- C force per unit mass acting on a small mass
- D force per unit mass acting on a small positive charge

31 Three parallel metal plates of the same area are fixed with a separation of 2.0 cm between the top plate and the middle plate, and 1.0 cm between the middle plate and the bottom plate. The top plate is held at a potential of +500 V, the middle plate at +200 V and the bottom plate is earthed, as shown.



What is the value of the ratio  $\frac{\text{magnitude of force on an electron at X}}{\text{magnitude of force on an electron at Y}}$ ?

- A 0.75
- B 1.00
- C 1.25
- D 1.50

32 The current  $I$  in a wire is given by the equation

$$I = nAvq$$

where  $n$  is the number density of the free electrons,  $A$  is the cross-sectional area of the wire,  $v$  is the average drift velocity of the free electrons and  $q$  is the charge of an electron.

Which relationship is **not** used in the derivation of this equation?

- A charge = current  $\times$  time
- B distance = speed  $\times$  time
- C number = number density  $\times$  area
- D volume = length  $\times$  area