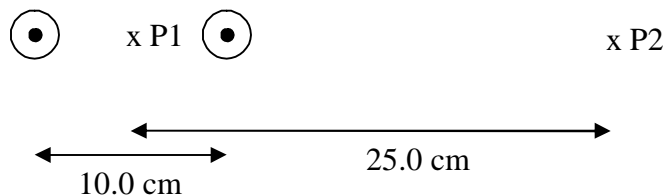


$$e=1.60 \times 10^{-19} \text{ C}$$
$$m=9.11 \times 10^{-31} \text{ kg}$$
$$\mu_0=4\pi \times 10^{-7} \text{ Tm/A}$$

Name: **Quiz for March 18th 2005 - Physics 151-001 - Prof. Thomson**

- (2 pts) 1) An electron in the beam of a TV picture tube moves with velocity 3×10^7 m/s and passes through a region of transverse magnetic field, where it moves in a circular arc with a radius of 0.180 m. What is the magnitude of the magnetic field?

- (2 pts) 2) Two long straight parallel wires 10.0cm apart carry equal 5.00A currents in the same direction, which is out of the page as shown in the diagram below.
- a. Draw on the diagram the magnetic field lines from the current flowing in wire 1 only. Now, draw on the diagram the magnetic field lines from the current flowing in wire 2 only. Use arrows to indicate the direction of the magnetic field.



- (2 pts) b. Find the magnitude and direction of the magnetic field at a point P1 midway between the wires.

- (2 pts) c. Find the magnitude and direction of the magnetic field at a point P2 25.0cm to the right of P1.

- (2 pts) d. What is the force per unit length on a third wire at point P2 carrying current 5.00 A in the same direction as the first two wires?