



# PHYSLETS ANSWER SHEET

MPS1A2

Modern Physics / Set 1 / Animation 2

Name \_\_\_\_\_ Class \_\_\_\_\_

<Show all work on calculations. Include proper units. Explanations require complete sentences.>

1) What is the direction of the Magnetic Field, into or out of the screen?

\_\_\_\_\_

2) An electric field may be used to apply a force to the electron so that the electron will travel in a straight line.

a) what direction does the force on the electron need to be? \_\_\_\_\_

b) what direction does the electric field need to be? \_\_\_\_\_

3) Experiment using values in the "Electric Field" box to determine the Electric Field Strength necessary to enable the electron to travel in a straight line.

\_\_\_\_\_ N/C

4) Derive an equation to determine the Magnetic Field Strength (B) in terms of the two known variables given in the applet "v" and "E".

5) Solve quantitatively for the Magnetic Field Strength.

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6) The experiment JJ Thomson carried out was only capable of determining the charge to mass ratio of the electron, not the actual charge of the electron. What experiment following Thomson succeeded in producing a precise value for the charge of the electron and what else did it show about the nature of this charge?