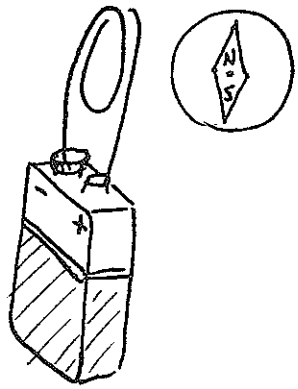
MAGNETISM WORKSHEET

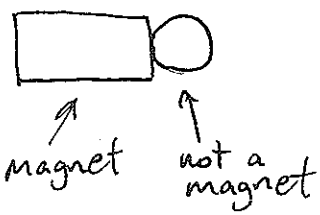
Question 1



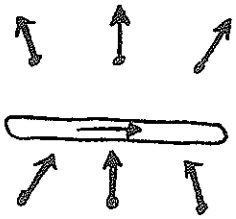
A wire is connected to a 9V battery as shown. What happens to the compass needle? What if the loop is turned around the other way?

Question 2

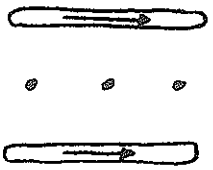
Why does a magnet attract a metal ball?



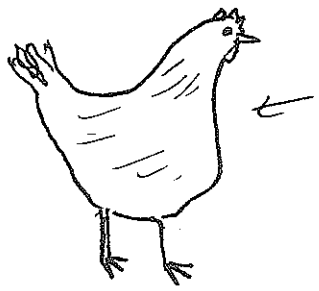
Question 3



The magnetic field at various points near a loop of current (shown edge-on) is pictured to the left. In the figure below, two of these loops are brought nearby each other. Determine the direction of the net field at the three marked points.

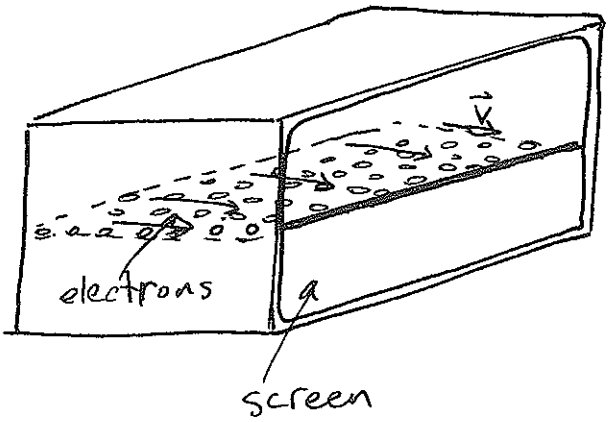


Free space. →

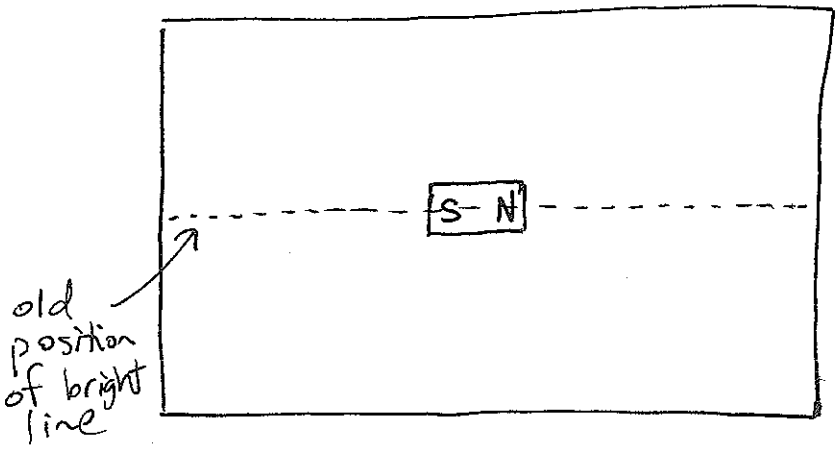


← A chicken.

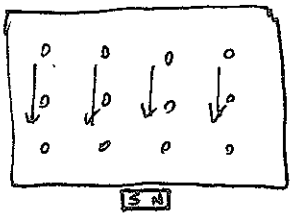
Question 4



In a trip to the thrift shop, Macklemore buys a big coat and an old piece of physics equipment that sends electrons toward a screen. The screen lights up along the line where the electrons are hitting. If Macklemore now holds a strong magnet up to the screen as shown below, what will happen to the pattern on the screen?

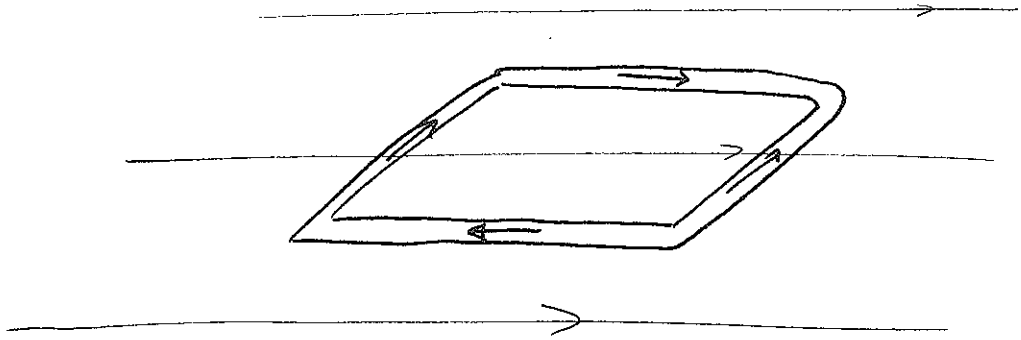


top view:



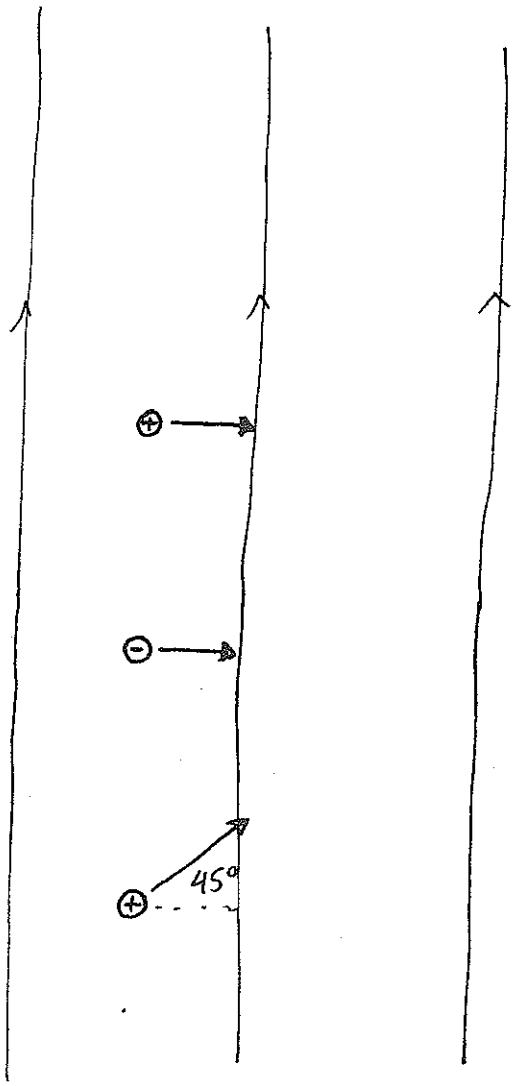
Question 5

A loop of current sits horizontally in a magnetic field that points to the right.



Find the direction of the force on each segment of the square loop. Is there a net force? Does anything happen to the loop?

Question 6



A uniform upward magnetic field fills space. Describe the trajectories of the three charged particles shown.