General Physics 204, Section ... Monday, Feb 23, 2015
Quiz #4

Name:

1) CLASS(2)
Hans Christian Oersted fixes four parallel wires perpendicular to the plane (parallel to z-axis), in a square pattern with side length $a = 20$ cm. The current passing through these wires are $I = 1.0$ A with directions shown in the figure. An electron is at point A and moving with velocity $\mathbf{v} = -\hat{\mathbf{x}}2.0 \times 10^6$ m/s. Find the force implied to this electron. **[4 pts]**

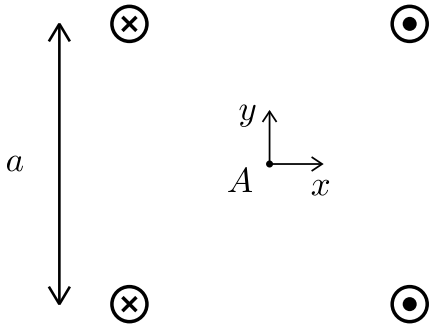

Figure 1: Parallel wires.

2) CLASS(2)
William Gilbert is asking you to imagine the Cartesian coordinate system, (x, y, z), and consider there is a current I passing through each axis. What is the magnetic field at any point $B(x, y, z)$? **[5 pts]**

3) CLASS(2)
John Michell shape a piece of wire as a triangle, RST, and connects it to a current source. The current passing through the triangle is $I = 2.0$ A. The lengths are $|RS| = 6$ cm, $|ST| = 10$ cm, and $|TR| = 8$ cm. He turns on a uniform magnetic field as shown in fig. 2, $\mathbf{B} = 0.2$ T$\hat{\mathbf{x}}$. Find the torque vector (the direction of the torque will show the axis and the direction of rotation). **[3 pts]**

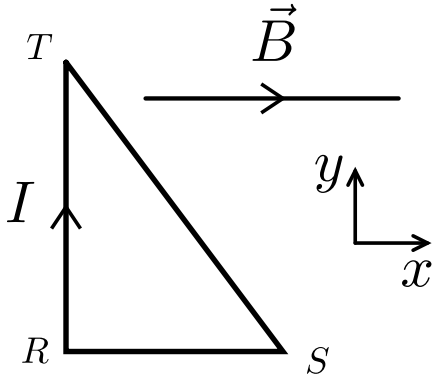

Figure 2: Parallel wires.