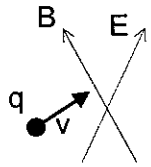
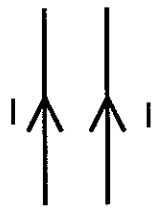
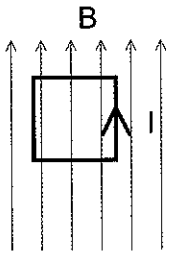
1. What is the Lorentz force?



2. Suppose we have two parallel wires, each carrying a current I flowing in the same direction. Could you use the Lorentz force formula above to predict whether the wires will attract or repel?



3. Instead, consider the following scenario, where a loop with a current *I* is subject to a constant magnetic field, what is the direction of the torque that is acting on the loop? What is the stable position of the loop?



4. In the Maxwell's equation, a macroscopic material is usually characterized by ε and μ. What does μ stand for?

5. Could you think of a simple microscopic model that explains the existence of $\mu > \mu_0$ in some materials?