## <u>Quiz 21.1B</u>

- a) A wire of length 1.25 meters carries a current of 4.33 Amps in a direction 37.0° vertically above due East. The wire is immersed in a uniform magnetic field of magnitude 75.0 µT that is directed due West.
- 1. (25 pts) Use the coordinate system below to sketch the direction of the current, the magnetic field, and the direction of the magnetic force.
- 2. (25 pts) What is the magnitude of the magnetic force on the wire?



- b) Suppose instead the magnetic field is pointing vertically downward.
- 1. (25 pts) Draw the situation below (I recommend the same base coordinate system as shown above), and indicate the direction of the current, magnetic field and magnetic force on the wire.
- 2. (25 pts) What will be the magnitude of the magnetic force on the wire?