1. Four long parallel wires each carry a 2.0 A current in the same direction. The wires are parallel to the z-axis, and they pass through the corners of a square of side 5.0 cm positioned in the x-y plane as shown in the diagram.
2. What is the magnitude of the magnetic field at the center of the square?
3. What is the magnitude (per unit length) and direction of the force that each wire experiences due to the other three wires?
4. A small generating station produces 5.0 kA of current at V = 10.0 kV. It must be transmitted with only a 4.0% loss of power, in a transmission line of 130 ohms total resistance. To achieve this, the voltage is changed by a transformer with 24 turns in its primary coil.

A) How many turns are in the transformers secondary coil?

1. A 24 m long wire has a resistance of 6.0 ohms. The wire is wrapped tightly about a short cylinder, making 85 turns, and the ends of the wire are connected to form a closed circuit. A magnetic field is applied parallel to the axis of the cylinder. At what rate must the magnitude of the field change to induce a current of 45 mA in the windings of the wire?
2. An electromagnetic wave spreads spherically from a transmitter. The average power output of the transmitter is 15 kW.
3. What is the average intensity of the electromagnetic wave 1.0 km away?
4. What is the rms value of the electric field 1.0 km away?
5. A certain transformer triples input voltage. If the current in the primary coil is 9.0 A, then the secondary coil current is
6. 3.0 A
7. 5.2 A
8. 9.0 A
9. 16 A
10. 27 A
11. A square loop of wire lies in the plane of the page. A magnetic field is directed into the page. If the intensity of the magnetic field is increased at a constant rate, then (looking down at the loop) the induced current is

a) Clockwise and increases with time

b) Clockwise and steady

c) Zero

d) Counter clockwise and steady

e) Counter clockwise and increasing with time

1. A positively charged particle moves at a constant speed in the positive x-direction. The particle then enters a region of a uniform magnetic field that also points in the positive x-direction, the particle will
2. Deflect upward
3. Deflect downward
4. Deflect into the page
5. Deflect out of the page
6. Continue moving in the same direction -------- I believe this is the answer