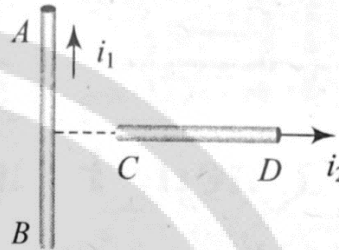# Ch—04 Moving Charges and Magnetism
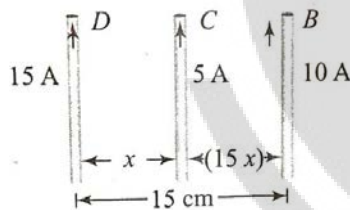
Daily Practice Problem 07

Q1. A long horizontal rigidly supported wire carries a current of $100\ A$. Directly above it and parallel to it is a fine wire that carries a current of $200\ A$ and weighs $0.05\ Nm^{-1}$. How far above the wire should the second wire be kept to support it by magnetic repulsion?

Q2. Three long, straight and parallel wires carrying currents are arranged as shown in the figure. The wire C which carries a current of $5.0\ amp$ is so placed that it experiences no force. The distance of wire C from wire D is then


a. 9 cm

b. 7 cm

c. 5 cm

d. 3 cm

Q3. An infinitely long, straight conductor AB is fixed and a current is passed through it. Another movable straight wire CD of finite length and carrying current is held perpendicular to it and released. Neglect weight of the wire

a. The rod CD will move upwards parallel to itself

b. The rod CD will move downward parallel to itself

c. The rod CD will move upward and turn clockwise at the same time

d. The rod CD will move upward and turn anti-clockwise at the same time

Q4. A rectangular loop carrying a current i is situated near a long straight wire such that the wire is parallel to one of the sides of the loop and is in the plane of the loop. If steady current i is established in the wire as shown in the figure, the loop will
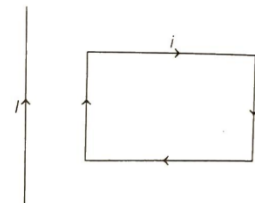

a. rotate about an axis parallel to the wire

b. move away from the wire

c. move towards the wire

d. remain stationary

Q5. Two very long, straight, parallel wires A and B carry currents of $10\ A$ and $20\ A$ respectively, and are at a distance $20\ cm$ apart, as shown in Fig. If a third wire C (length 15 cm) having a current of 10 A is placed between them, how much force will act on C? The direction of current in all the three wires is same.

Q6. A square loop of side 20 cm carrying current of $1\ A$ is kept near an infinite long straight wire carrying a current of $2\ A$ in the same plane as shown in Fig. Calculate the magnitude and direction of the net force exerted on the loop due to the current carrying conductor.
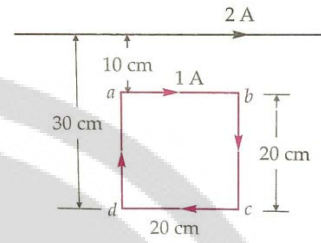
ANSWERS

1. 8 cm

2. a

3. c

4. c

5. $3.0 \times 10^{-5} \ N, towards \ B$

6. 5.33×10^{-7}