Physics 3204

Unit 2: Electromagnetism

Worksheet 2: Magnetic Field Around a Straight Conductor

PART A: MULTIPLE CHOICE

1. Who discovered that a magnetic field is created around a current-carrying wire?

   (A) Faraday
   (B) Kirchoff
   (C) Lenz
   (D) Oersted

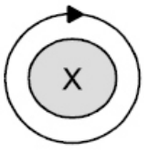
2. Which describes the magnetic field lines around the current carrying conductor shown below?

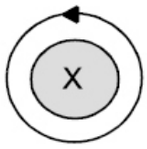
   (A) clockwise concentric circles
   (B) counterclockwise concentric circles
   (C) parallel lines pointing down
   (D) parallel lines pointing up

3. Which represents the magnetic field produced around the straight current-carrying conductor below?

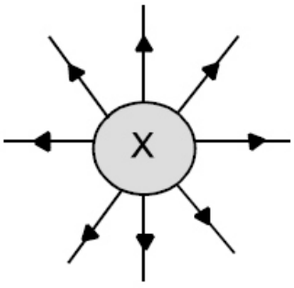
(A)



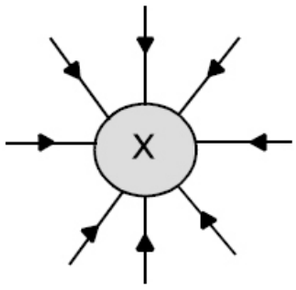
(B)



(C)



(D)

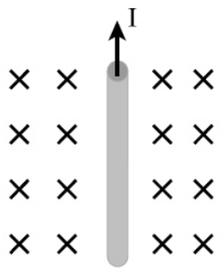


4. In the diagram below, a current travels through a cell phone antenna. What is the direction of the magnetic field around the antenna?

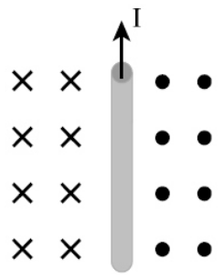
   (A) clockwise (viewed from above)
   (B) counterclockwise (viewed from above)
   (C) down
   (D) up

5. Which shows the magnetic field on both sides of a current-carrying wire?

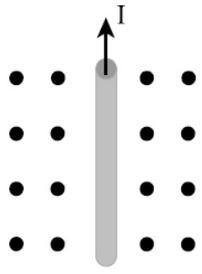
(A)



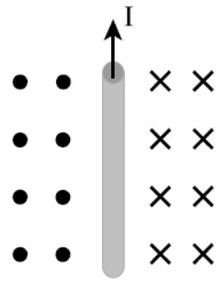
(B)



(C)

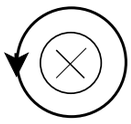


(D)

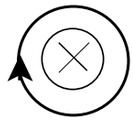


6. Which correctly shows the magnetic field around a straight wire carrying a current into the page?

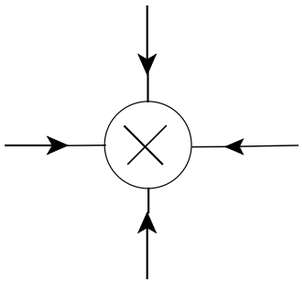
(A)



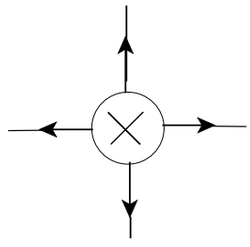
(B)



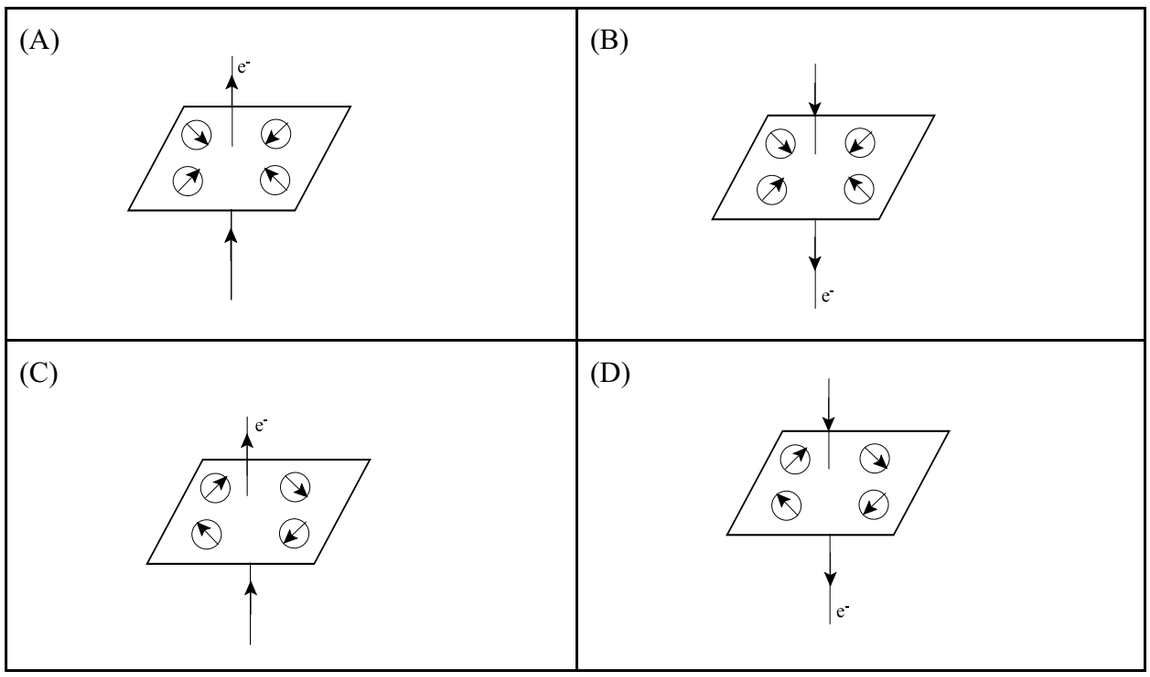
(C)



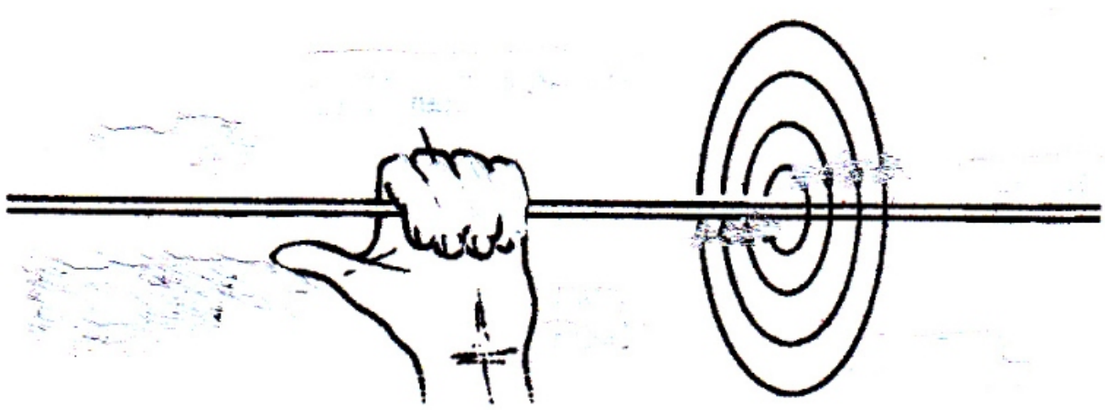
(D)



7. Which shows the direction compass needles are deflected when placed near a current-carrying wire?



8. Use the diagram below to show that you understand the left hand rule for current passing through a straight conductor.



9. Sketch the direction of the magnetic fields around each object.

a) **b)** **c)** **d)**