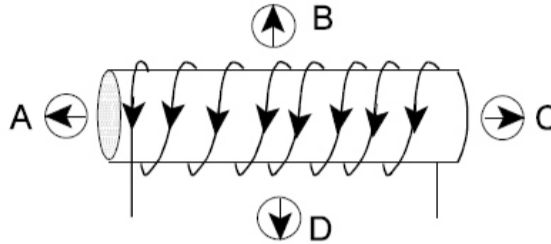


**Physics 3204**  
*Unit 2: Electromagnetism*  
**Worksheet4: Solenoids and Magnetic Field**

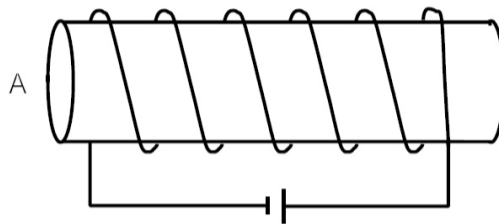


1. A solenoid is surrounded by four compasses as shown. Which compass reading is correct?

- (A) A
- (B) B
- (C) C
- (D) D



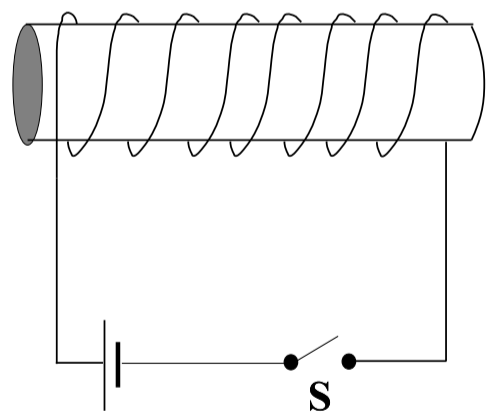
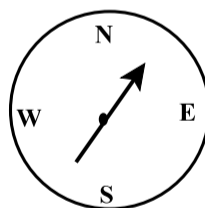
2. What are the magnetic poles of the current-carrying solenoid in the diagram below?



	Pole A	Pole B
(A)	north	north
(B)	north	south
(C)	south	north
(D)	south	south

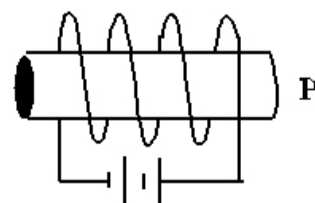
3. As switch S is closed in the diagram below, in which direction does the compass needle point?

- (A) East
- (B) North
- (C) South
- (D) West

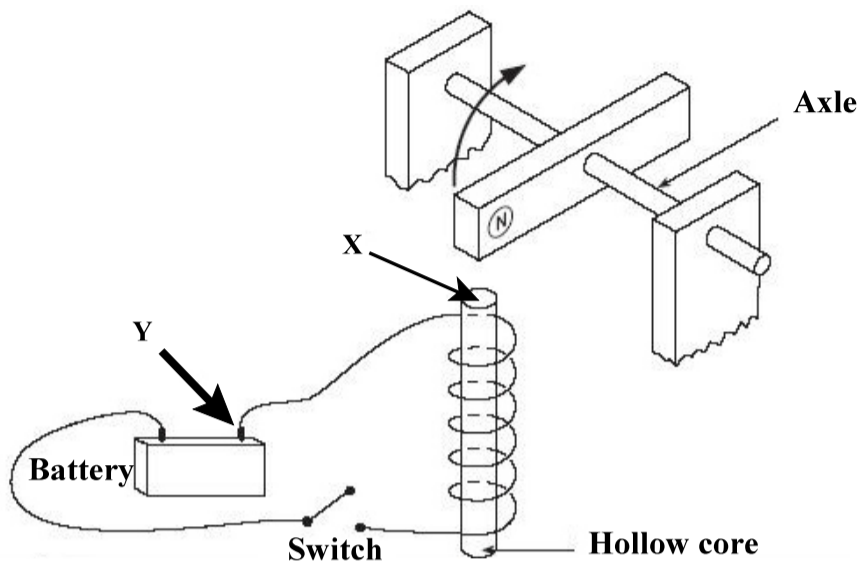


4. The picture shows an insulated, current carrying wire wrapped about an iron core. What is the direction of the magnetic field lines at point P?

- (A) into the page
- (B) out of the page
- (C) to the left
- (D) to the right



5. In the diagram below, a permanent magnet is balanced above a coil of wire. When the switch is closed, the magnet is deflected upward. What is the magnetic polarity at the hollow core (X) and the charges at the battery terminal (Y)?



	X	Y
(A)	north	negative
(B)	north	positive
(C)	south	negative
(D)	south	positive

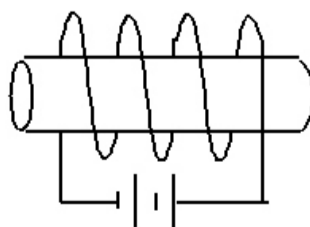
6. Note the following diagram



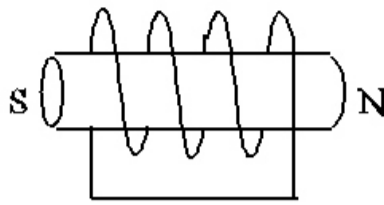
State the rule for a coiled conductor.

***“ Grasp the coil with the left hand such that.....”***

6. Sketch the direction of the magnetic fields

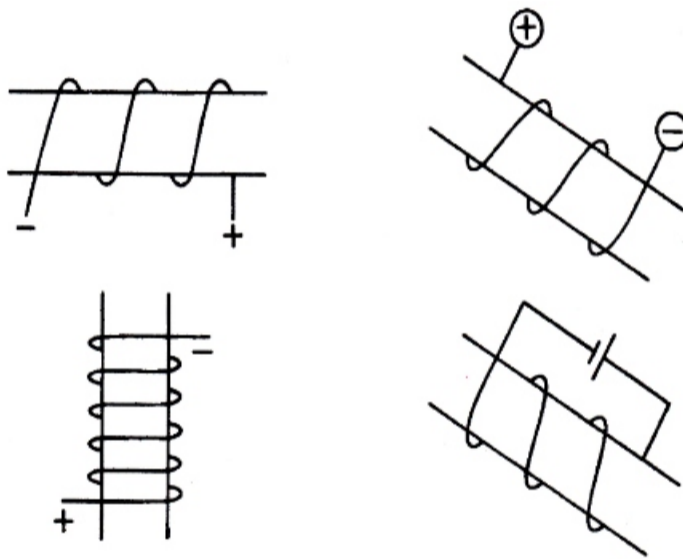


7. What must be the direction of the current flow



8. Coils of wires wound on cardboard cylinders are illustrated below. On each diagram mark:

- (1) the direction of electron flow
- (2) the direction of the field lines at the end of each coil; and
- (3) the N - pole and S- pole of the coil



9. Show the direction of the electron flow and the direction which the compass needles point.

