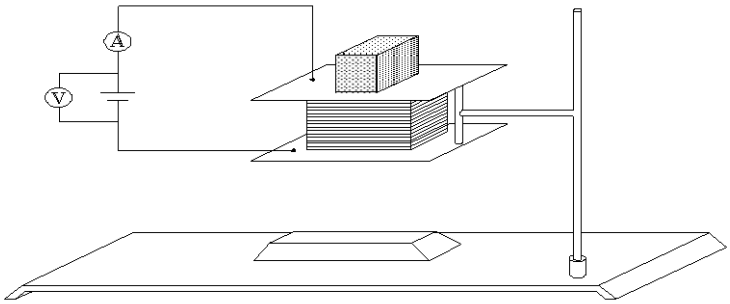
Electromagnet questions

1. Electro-magnets are used in industry to attract metallic objects.

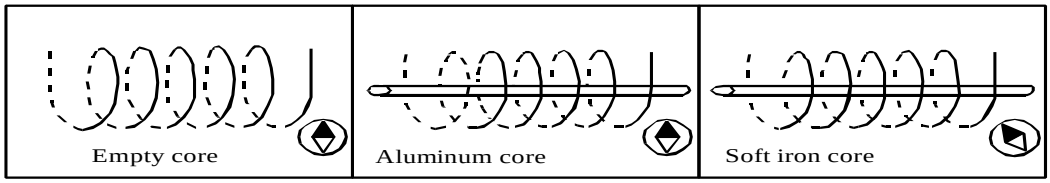


The diagram shows an electro-magnet with an iron core.

Which of the following changes would increase the strength of the electro-magnet?

1. Increase the potential difference of the power supply.
2. Increase the temperature of the core.
3. Use a core made of copper instead of iron.
4. Increase the number of turns.

2. You experiment with an electromagnet by inserting three different cores into a solenoid.



Which of the following statements is **true**?

A) Insertion of a soft iron core reverses the poles of the solenoid.

B) Insertion of an aluminum core reduces the strength of the electro magnet.

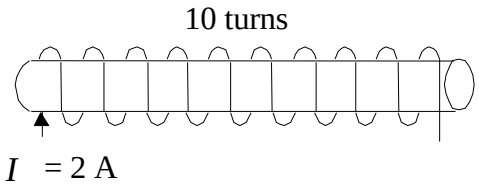
C) Insertion of a soft iron core increases the strength of the electromagnet.

D) Insertion of a core has no effect on the strength of the electromagnet.

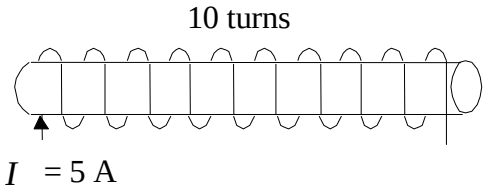
3. The diagrams below illustrate electromagnets all consisting of the same core. One of these electromagnets produces a magnetic field that is more intense than that of the others.

Which electromagnet is it?

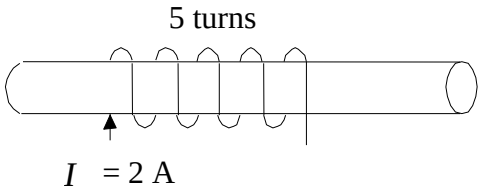
A)



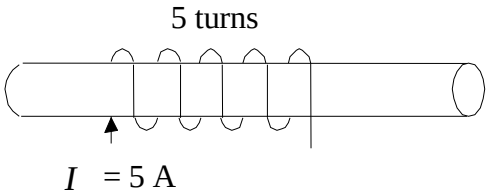
C)



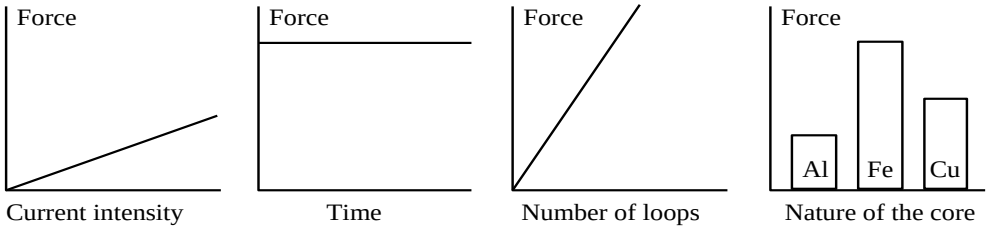
B)



D)



4. Julie performed several experiments in the laboratory investigating the magnetic field produced by a solenoid. She plotted the following four graphs.



What conclusions can Julie make after studying the graphs?