University of Kentucky Department of Physics

Prelab 6: Magnets

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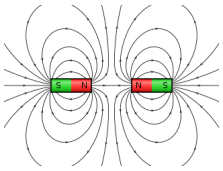
October 11, 2017
Due 11 Oct 11:59

Problem 1

When you bring two magnets near each other sometimes they stick together and sometimes they repel. Explain using concept of **B**-field

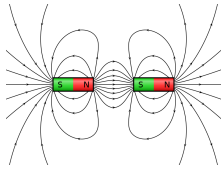
The following[1] show the magnetic field **B** of magnets that repel and attract.

- **Case 1. Magnets repel (N-N)**



same pole closest⇒ **B**-field lines from each magnet diverge because they repel each other

- **Case 1. Magnets attract (N-S)**

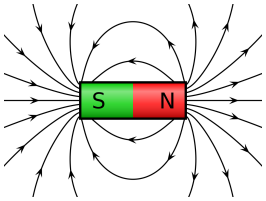


opposite pole closest ⇒ **B**-field lines from each magnet meet because magnets attract each other ⇒ magnets will stick together.

[1] Image source: Wikipedia

Problem 2

Describe the magnetic field around a permanent magnet



- field line is in North to South direction
- field lines from closed loops
- **B** is strongest where field lines are closest together (magnet interior) and drop off in strength with distance

Problem 3

Write down kirchhoffs voltage/loop law for the right loop of the circuit

$$+V_{\text{middle}} - I_{\text{center}}R_2 + R_3 I_{\text{right}} = 0$$