**IB Physics**

**Pre-Quiz 21.1**

Name

Favorite Slogan

**Find the direction of the induced current ( . = out of the page, x = into the page)**

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| --- | --- | --- | --- | --- |
| **1** | CW | ACWB:x x x x x x xx x x x x x xx x x x x x xx x x x x x x | ACW | CWB:x x x x x x xx x x x x x xx x x x x x xx x x x x x x |
| **2** | **B increases**CW | **B decreases**CWB x x x x x x xx x x x x x xx x x x x x xx x x x x x x | **The magnet moves as shown. Which way does the current flow on the front of the coil?**downN S | **The magnet moves as shown. Which way does the current flow on the front of the coil?**downS N |
| **3** | **Current increases**ICW | **Current decreases**acwI | **Current in outer loop increases**CW | **Current in inner loop increases**CW |
| **4** | **Which end of the wire is +?**bottomB:. . . . . . .. . . . . . .. . . . . . .. . . . . . . | **Which end of the wire is +?**rightB x x x x x x xx x x x x x xx x x x x x xx x x x x x x | **CW or ACW?**cwB:. . . . . . .. . . . . . .. . . . . . .. . . . . . . | **CW or ACW**cwB x x x x x x xx x x x x x xx x x x x x xx x x x x x x |

**5.** The approach of a North Pole magnet from above the page changes the magnetic field in the 2.50 m radius loop below from .142 T into the page to .249 T into the page in .621 seconds. What is the EMF induced? Which way does the current flow? If the loop has a resistance of 2.3 ohms, what is the current that flows? (What is the power dissipated? What is the total electrical energy generated? If the magnet moved 3.75 cm to effect this change, what was the average force that resisted its motion?)

(3.38 V, ACW, 1.47 A, 4.98 W, 3.09 J, 82.4 N)