

Physics Challenges for Teachers and Students

A Worldwide Problem-Solving Contest



► Ring, Ring, Ring...(A4)

A ring of mass m , diameter d , and resistance r is falling from a large height in a vertical magnetic field. The magnitude of the field changes with height: $B = B_0(1 + ky)$, where k is a known constant and y is the vertical coordinate. Find the terminal velocity of the ring. The plane of the ring remains horizontal as it falls.

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Submission Guidelines:

The deadline for submitting solutions to this problem is May 9, 2005.

- only email submissions will be considered;
- email your solutions to Boris Korsunsky at korsunbo@post.harvard.edu;
- please email the solutions as Word files;
- please email *each solution* as a separate file;
- note that each problem, in addition to a very clever title, has a code such as A1. Please name each file as “problem code-first initial-last name.” For instance, “A1DVader” if your name is Darth Vader and you are sending the solution to problem A1;
- please state your name, hometown, and professional affiliation in each file.

We look forward to your (and your students’) participation.

Please send correspondence to:

Boris Korsunsky
korsunbo@post.harvard.edu

The next *Challenge* problem will be posted online May 2.