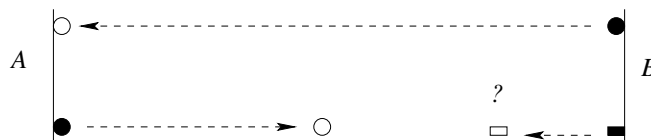


Challenge of the Week

Challenge of the Week # 9 - October 30 to November 6, 2009

A boat leaves from a bridge, A , and sails upstream, which is from left to right in the following diagram.



At the same time, from a bridge B which is upstream from A , another boat begins to sail downstream. Also, at the same time a raft leaves bridge B floating downstream. The current of the stream is constant. The two ships travel at the same speed relative to the water, but the current increases the speed of the ship sailing downstream and decreases the speed of the ship sailing upstream. Eventually the ship sailing downstream arrives at bridge A . At this time is the raft closer to the ship sailing upstream or to bridge B ? For the purposes of this problem, consider the boats and the raft as points. Justify your answer.

Direct any questions concerning this week's challenge to Gregory Galperin, OM 3361

Rules and Awards

- Any undergraduate currently enrolled at EIU is eligible to participate.
- Each solution is to be the work of one individual and is to be submitted with the solver's name, year in school, email address, local address and home address.
- Each solution is to be written or typed and is due in the main Mathematics Department office (OM3611) by 2:00 p. m., Friday, November 6.
- Entries will be graded on the basis of clarity of exposition and elegance of solution.
- An award of \$20 will be given for the best solution. In the case of a two-way tie, the award will be split. If there are more than two 'best' solutions, a drawing will be held for the award. In case no award is made for this week's challenge, \$20 will be added to the next week's award.
- Names of all solvers will be posted on the Challenge of the Week bulletin board and on the Challenge of the Week homepage: <http://www.ux1.eiu.edu/~dmbroline/chalweek/index.html>