

Challenge of the Week

Problem #1 - September 4 to September 18, 2015

Ten logicians walk into a diner and sit next to each other in a row at the counter. Each one wants to order either coffee or tea. The waitress welcomes them and then asks loudly, “*Do you ALL want coffee?*” Then she goes down the counter looking for their individual responses. None of these mathematicians knows the plans of the others and each one answers truthfully, loudly enough for all the others to hear, and in a manner befitting their status as logicians respond with “Yes”, “No”, or “I don’t know”! The sixth one to answer says, “I don’t know.” The seventh one says, “No.”

1. Determine, with explanation, the individual responses of the other logicians.
2. Determine, with explanation, the minimum and the maximum number of logicians who want coffee.

Hint: *If you miss “ALL,” you miss all!*

Direct any questions 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, September 18, 2015.
- Entries will be judged on the basis of clarity of exposition and elegance of solution. That is to say, the *explanation* is more important than the answer.
- An Award of \$25 will be given for the best solution. In the case of a two-way tie, the award will be evenly split. If there are more than two ‘best’ solutions, a drawing will be held for the reward. In the case no award is made for this challenge, \$25 will be added to the next challenge.
- Challenges, solutions, names of all solvers, and comments will be posted on the Challenge of the Week homepage:
<http://www.eiu.edu/math/challenge.php>.