Problem of the Week
Number Six
March 3, 2014

No time for banter! This week's problem is such a barn-burner that we need to get straight down to business.

You meet nine people, exactly one of whom has a valuable diamond. Several others have less valuable rubies (and no diamonds), while others do not have any gems at all. The speakers have been numbered from one to nine, for convenience. We also know that the person with the diamond is a knight, and that anyone with a ruby is a knave. People with no gems could be either knights or knaves. They make the following statements:

1. Quincy: One of the odd-numbered speakers has the diamond.
2. Rouletabille: I have no gems.
3. Sisko: Uhura is a knight or Wall-E is a knave.
4. Troi: Quincy is a knave.
5. Uhura: Rouletabille is a knight or Troi is a knight.
6. Victor Frankenstein: Sisko is a knave.
7. Wall-E: Quincy does not have the diamond.
8. Xander: I have a ruby and Yoda has no gems.
9. Yoda: I have a ruby and Victor Frankenstein is a knave.

These statements alone are insufficient to determine who has the diamond. But if I told you whether or not Xander had a gem, then you would have enough information. So, that's it. Tell me who has the diamond!

Didn't I promise you a barn-burner? As impressed as I'm sure you are right now, take a moment to appreciate what's on the other side of the page $\Longrightarrow$

Solutions are due to Jason Rosenhouse by 5:00 on Friday, March 7. Please write your solution clearly in the space below. Place your name, e-mail address, and the section numbers and professors of any math courses you are taking, in the upper right corner of the front of the page. One weekly winner will receive a five-dollar gift card from Starbucks. Please make sure that the answer to the problem is displayed clearly and prominently. ***Keep in mind, however, that to be considered correct, your answer to the problem must be accompanied by a clear, concise explanation that proves that your answer is the only one possible.*** *Problems are available at the bulletin board outside Roop 119, and also at the website:*

http://educ.jmu.edu/∼rosenhjd/POTW/Spring14/homepage.html