
Problem of the Week

Number Four

February 10, 2014

Here's a little exercise for you. What strange property do the following fractions have in common:

$$\frac{16}{64} \quad \frac{19}{95} \quad \frac{26}{65} \quad \frac{49}{98}$$

Feel free to mull that over, but that is *not* this week's problem. We need to introduce some new characters before we come to *that* piece of business.

Two of the more interesting residents on the island of knights and knaves are Janeway and Kojak. Janeway lies on Mondays, Tuesdays and Wednesdays, and tells the truth on the other days of the week. Kojak, for his part, lies on Thursdays, Fridays and Saturdays, and tells the truth on the other days. With that set-up we are ready to state the problem.

While out for a walk, you meet a pair of identical twins named Lestrade and Merrivale. You happen to know that one of them is like Janeway with regard to his habits in lying and truth-telling, while the other takes after Kojak. They engage in the following dialogue:

First Twin: Today is not Sunday.

Second Twin: In fact, today is Monday.

First Twin: Tomorrow is one of Lestrade's lying days.

Second Twin: Kojak lied yesterday.

You must answer each of the following three questions:

- 1. What day of the week is it?**
- 2. Which of the twins is Lestrade?**
- 3. Does Lestrade take after Janeway, or does he take after Kojak?**

Good luck with that! Also, please notice what is written on the other side of the page \implies

Have you figured out what's so special about those fractions? Well, take a super-naive approach to fraction reduction in which you are allowed to "cancel" any common digits on top and bottom, and see what happens.

*Solutions are due to Jason Rosenhouse by 5:00 on Friday, February 14. 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>