PROBLEM OF THE WEEK 15

Due Wednesday, February 6 at 5:00 pm

Question. For a positive integer p consider the equation

$$\frac{1}{x} + \frac{1}{y} = p.$$

Prove that if p is a prime number then, the equation has exactly three distinct solutions (x, y) in positive integers and if $p > 1$ is not prime, then the equation has more than three solutions in positive integers.

- All answers should be clearly explained. Submit it to the Math/Stat Office, AMB 107.
- If your instructor gives you credit for POTW, write his/her name with the class number.
- Contact Bahattin Yildiz with questions: bahattin.yildiz@nau.edu (AMB 134)
- The problems are available online at https://naumathstat.github.io/problem-of-the-week/