Problem of the Week #12
2/13/2023 to 2/26/2023

Consider the equation $a^2 + b^2 + c^2 + d^2 = abcd$, which has a solution $(a, b, c, d) = (2, 2, 2, 2)$. Show that this equation has infinitely many other solutions in the positive integers.

Solutions for this problem can be submitted to Dr. Brian Miceli at bmiceli@trinity.edu. People who submit solutions will be acknowledged on the next problem. If you like these problems, you may be interested in the Putnam Exam, and more information on the Putnam Exam may be found [HERE].

Solutions to the previous problem were submitted by Ziad Aramouni (Lebanon), Colin Bown (Austin, TX), M.V. Channakeshava (India), Ritwik Chaudhuri (India), Evan Fu (Beaverton, OR), Amelia Gibbs (TU), Ong See Hai (Singapore), Rob Hill (Gambrills, MD), Hari Kishan (India), Tengiz Kutchava (Georgia, the country), Yann Michel (Paris, France), François Seguin (Amiens, France), and Zurab Zakaradze (Georgia, the country).