Problem 10. Find all solutions in real numbers to the equation

$$(1 - x_1)^2 + (x_1 - x_2)^2 + (x_2 - x_3)^2 + \cdots + (x_{2012} - x_{2013})^2 + x_{2013}^2 = \frac{1}{2014},$$

and prove that you have all of the solutions.

Solutions due by 10:00am Monday, March 31.