1014-E1-185 **Tamara B Veenstra*** (tamara_veenstra@redlands.edu), University of Redlands, Mathematics Department, Redlands, CA 92374. *A Number Theory Application to Origami.* Preliminary report.

The Fujimoto approximation technique is a method used in origami of dividing a paper into 1/5 or 1/7 or 1/nth for any odd n. Sometimes this method will mark all the nth divisions of the paper and sometimes it will mark just some of the nth divisions of the paper. (It will always mark 1/nth, but will only sometimes mark all of 1/n, 2/n,... and n-1/n.) Thus, an interesting question is for which n will all the divisions of the paper get made. The standard answer to this question has to do with the repeated pattern when 1/n is expressed as a base 2 decimal. However, there is another answer to the question, which involves primitive roots. This paper will discuss how primitive roots and modular arithmetic can be used to answer this origami question. (Received August 11, 2005)