

Name (Last, First): _____

Student ID: _____

Dror Bar-Natan: Classes: 2014-15: MAT 475 Problem Solving Seminar:

<http://drorbn.net/15-475>

Quiz 1 “Search for a Pattern”, January 8, 2015. You have 25 minutes to solve as much as you can of the following problem. Please write on both sides of the page. **Good Luck!**

Problem (Larson’s book, problem 1.1.6, plus little). Beginning with 2 and 7, the sequence 2,7,1,4,7,4,2,8,... is constructed by multiplying successive pairs of its members and adjoining the result as the next one or two members of the sequence, depending on whether the product is a one- or two-digit number.

1. Prove that the digit 6 appears an infinite number of times in the sequence.
2. Prove that the sequence is not periodic.