Math 580: Quiz 4

Show ALL Work Name _____

1. The number 2017 is a prime. What is the smallest positive integer m such that

$$2019^{2018} \equiv m \pmod{2017}\,?$$

Show the work leading to your answer.

$m =$ [ ]

2. The prime factorization of 5461 and 5460 are given by

$$5461 = 43 \cdot 127 \qquad \text{and} \qquad 5460 = 2^2 \cdot 3 \cdot 5 \cdot 7 \cdot 13.$$

Prove that 5461 is a pseudoprime. Use English sentences throughout your proof.