Quiz 6

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This quiz does not count towards your grade. It exists to simply gauge your understanding. Treat this as though it were a portion of your midterm or final exam.

1 Fermat's Little Theorem

1. Prove that if p is prime, $x^a = x^{a \mod (p-1)} \mod p$.
2. Solve $2016^{2016^{2016}} \mod 2017$. (Note: 2017 is prime)
3. Let p be prime. Is $a^p \equiv a (\text{mod } p) \implies a^{p-1} \equiv 1 (\text{mod } p)$ true?