

Quiz 2

October 20, 2021

1. Sasha keeps pet sloths in her backyard. If she divides them into 5 equal groups, 4 are left over. If she divides them into 8, 6 are left over. If she divides them into 9 equal groups, 8 are left over. What is the smallest number of sloths she could have?
2. Reduce 47^{222} modulo 113.

Hint: Use Fermat's theorem and the fact that 113 is a prime.