Math 301 Homework 5, Due: March 24

1. Find all distinct solutions modulo 8 of $2x \equiv 6 \pmod{8}$.

2. Find all distinct solutions modulo 1597 of $987x \equiv 610 \pmod{1597}$.

3. Chinese generals counted troops remaining after a battle by lining them up in rows of different lengths, counting the number left over each time, and calculating the total from these remainders. If a general had 2400 troops at the start of a battle and if there were 3 left over when they lined up 5 at a time, 3 left over when they lined up 6 at a time, 1 left over when they lined up 7 at a time, and 2 left over when they lined up 11 at a time, how many troops remained after the battle?