Seminar 2

1. Compute $(360, 294)$ by using:
(a) factorization of each number.
(b) the Euclidean Algorithm.
(c) repeated subtractions.

2. Compute $(2613, 2171)$ and express it as a linear combination of the two numbers.

3. Compute the inverse of 160 modulo 841 and check the result.

4. Solve the system of congruences:

$$\begin{cases} x \equiv 2 \pmod 3 \\ x \equiv 3 \pmod 5 \\ x \equiv 4 \pmod 7 \end{cases}$$

and check the result.

5. Compute $b^k \mod n$, where $b = 23$, $k = 47$, $n = 51$.

6. Compute Euler's function $\varphi(n)$ for $n = 90, \ldots, 95$.