Problem 1. Show that every prime number greater than 3 is in the form of $6n-1$ or $6n+1$, for some integer n.

Problem 2. Given natural numbers a and b such that a^2+b^2 is divisible by 3, prove that the same sum of squares is also divisible by 9.

Problem 3. Show that, for any natural number x, the numbers x^3 and x have the equal remainders when divided by 6.

Problem 4. Prove that if $(n-1)!+1$ is divisible by n, then n is a prime number.

Problem 5. The natural numbers x and y satisfy the relation $34x = 43y$. Prove that the number $x+y$ is not prime.

Also, try to do the problem on 17-digit numbers from Homework 1.