1. Find all integer solutions to the congruences

$$3x \equiv 2 \pmod{11},$$
$$4x \equiv 3 \pmod{13},$$
$$5x \equiv 4 \pmod{19}.$$

Find, in particular, the smallest positive solution.

2. Compute the remainder when

$$(5^{167} + 11^{234})^{145}$$

is divided by 84.

3. Find all primitive roots modulo 11. How many are there ? Can you figure out a formula for the number of primitve roots modulo p, where p is a prime ?

4. Compute $\phi(10585)$. Notice anything ? (you probably won't, but in any case the övningsledare will explain what I mean).