Math 495R Homework 23

(1) Project Euler, problem 10
(2) Project Euler, problem 25
(3) A) For each number n from 3 to 100, compute the value of $2^{n-1} \pmod{n}$. When is this congruent to $1 \pmod{n}$?
B) Now choose a prime number p between 20 and 100. For each number n between 1 and $p-1$, determine the smallest positive power k such that $n^k \equiv 1 \pmod{p}$, if there is one. What do you notice about these powers? Repeat this for two other primes.