1. Complete the following problems from Niven-Zuckerman-Montgomery (henceforth NZM):

   NZM 2.7: 2, 3, 4
   NZM 2.8: 2, 6, 8, 9, 14, 18, 27, 31, 35

2. PARI PROGRAM OF THE WEEK:

   A famous conjecture of (Emil) Artin states:

   There are infinitely many primes $p$ for which 2 is a primitive root mod $p$.

   Recall a number $a \mod m$ is called a primitive root mod $m$ if the order of $a \mod m$ is $\phi(m)$.

   Write a PARI program to test Artin’s conjecture. Try to determine a function whose growth matches that of $P_2(X)$, the number of primes $p \leq X$ for which 2 is a primitive root mod $p$ (in the same spirit as our earlier calculations for primes in arithmetic progressions).

   Can you explain why the function you guessed makes sense as a model for the growth of $P_2(X)$?