1. Solve $4^x \equiv 28 \mod 37$ by hand using Shanks algorithm.

   You can use Mathematica to calculate multiplicative orders and to perform modular multiplication.

2. Download the Mathematica notebook for today.
   Use it and Shanks to solve the following DLPs.
   How long are your lists in each case?
   (a) $4^x \equiv 28 \mod 37$

   (b) $6^x \equiv 5660 \mod 7951$

   (c) $637\,239\,129^x \equiv 182\,583\,899 \mod 2\,043\,290\,489$

3. Look up the 2048-bit prime at `https://www.rfc-editor.org/rfc/rfc3526`
   Would Shanks be effective in attacking the DLP using the recommended parameters for this prime?