Homework on §10–11
Due: Thursday, March 14

A. Write a program that takes as input a positive integer n and computes $\varphi(n)$. You may use brute force.

B. Compute

   1. $\varphi(81)$
   2. $\varphi(20736)$
   3. $\varphi(10000000000)$

C. 1. Find all n for which $\varphi(n) = 4$.
   2. Find all n for which $\varphi(n) = 6$.

D. Silverman 11.5.

E. Silverman 11.8. You may not use brute force.

F. Silverman 11.9.

G. Show that if $\gcd(m, n) > 1$, then

$$\begin{aligned} \psi : \mathbb{Z}/mn &\to \mathbb{Z}/m \times \mathbb{Z}/n \\ [x] &\mapsto ([x], [x]) \end{aligned}$$

is never bijective.