

1. Let $n = 7$

(a) What are the possible orders for elements in \mathbb{Z}_n^* ?

(b) Fill in the following table:

a	$a^n \pmod n$
1	
2	
\vdots	
$n-1$	

2. Repeat #1 for $n = 11$

3. Repeat #1 for $n = 15$

4. Let $n = 10\,116\,848\,611$

(a) Compute $17\,948\,389^n \pmod n$

What does this tell you about the primality of n ?

(b) Compute $2^n \pmod n$

What does this tell you about the primality of n ?

5. Let $n = 329$

(a) Is n prime or composite?

(b) Find a witness for the compositeness of n

6. Repeat #5 for $n = 561$