HOMEWORK VII
on the material from lectures on Oct, 23 and partially Oct, 30
MATH-UA 0248-001 THEORY OF NUMBERS
due on Nov, 3, 2017

1. Determine all the primitive roots of the prime 17.

2. For a prime $p > 3$ prove that the primitive roots of p occur in pairs r, r' with $rr' \equiv 1 \pmod{p}$. (Hint: if r is a primitive root of p, consider the integer $r' = r^{p-2}$).

3. Show that 1000! terminates in 249 zeros.

4. Show that
$$\sum_{n=1}^{N} \mu(n)[N/n] = 1.$$