Worksheet 8

November 18, 2022

1. Proving that Carmichael numbers are squarefree.

   (a) Show that a given non squarefree number n can be written in the form $n = p^k N$ for some prime p and integers N and k with $k \geq 2$ and gcd (p, N) = 1.

   (b) Show that $(1 + pN)^{n-1} \not\equiv 1 \ mod \ p^2$.

   (c) Deduce that Carmichael numbers are squarefree.