

NUMBER THEORY: CLASS 14

1. EXERCISE

- 1) Find the remainder when 5^{100} is divided by 7.
- 2) Find the remainder when $17!$ is divided by 19.
- 3) Prove that $5n^3 + 7n^5 \equiv 0 \pmod{12}$ for all integers n .
- 4) Show that the converse of Wilson's theorem:
If $(n - 1)! + 1 \equiv 0 \pmod{n}$ then n is prime if $n > 1$.