

TUTORIAL 6

- (1) Determine the last digit of the integer 2^{100} .
- (2) Let k be an odd integer. Prove that $k^2 - 1$ is divisible by 8.
- (3) Let $f : \mathbb{Z}_n \rightarrow \mathbb{Z}_n$ be the function given by $x \rightarrow x^2$. For which $n \in \mathbb{N}$ is f a bijection.
- (4) Let p be an odd prime. Determine the set of all integers n which satisfy the equation
$$2n^2 + n \equiv 0 \pmod{p}$$