

Problem Solving

Set 9

12 July 2012

1. Let x, y , and z be integers such that $n = x^4 + y^4 + z^4$ is divisible by 29. Show that n is divisible by 29^4 .
2. Find all continuous odd functions $f : \mathbb{R} \rightarrow \mathbb{R}$ such that the identity $f(f(x)) = x$ holds for all real x .