

Quiz 4

November 30, 2021

1. If (x, y, z) is a Pythagorean triple, then prove that $\gcd(x, y) = \gcd(x, z) = \gcd(y, z)$.
2. Prove that there are no solutions in positive integers to the equation.

$$x^n + y^n = z^n \quad \text{for } n \in \mathbb{N} \text{ and } n \text{ is a multiple of } 4.$$

3. Prove that to prove Fermat's last theorem in general it suffices to show that the equation $x^p + y^p = z^p$ has no positive solutions for each odd prime p .