

Name and Surname:

Student Number:

Math 366 - Spring 2015 - METU

Quiz 1

Question: Let $n \geq 3$ be given. Show that there is Pythagorean triple (x, y, z) such that one of x, y, z is n .

Solution: We know that the parametrization $x = a^2 - b^2, y = 2ab$ and $z = a^2 + b^2$ gives a Pythagorean triple for any choice of integers a and b . If $n = 2k$ then we can pick $a = k$ and $b = 1$ and therefore $y = n$. If $n = 2k + 1$ then choosing $a = k + 1$ and $b = k$, we obtain $x = n$. Thus there is Pythagorean triple (x, y, z) such that one of x, y, z is n .