

Mathematics 300

Quiz 2

Name: _____

You must show your work to get full credit.

1. Prove or give a counterexample: If x is odd, then $3x^2 - 1$ is also odd.
2. An integer x is of **type 0** if and only if $x = 3n$ for some integer n , x is of **type 1** if and only if $x = 3n + 1$ for some integers n , x is of **type 2** if and only if $x = 3n + 2$ for some integer n . Prove or give a counterexample: If x is of type 2, then $x^2 - 2$ is also of type 2.