

Quiz 2, Math Thought

Dr. Graham-Squire, Spring 2016

Name: _____

1. (4 points) Prove that if $x^3 - 7$ is irrational, then x is irrational.

2. (3 points) Let a and n be positive integers. Prove that if n divides a , then $a \equiv 0 \pmod{n}$.
(Recall that $a \equiv b \pmod{n} \leftrightarrow n$ divides $a - b$).

3. (3 points) Consider the following statement: “For all integers x , there exists a positive real number y such that $3x < \sqrt{y}$.”
- (a) Write the statement above using only mathematical notation (or as much math notation as you can).
- (b) Write, in words, the *negation* of the statement above.