

MATH 243 – Mathematical Structures

Quiz 1 – September 8, 2017

Your Name: _____

Directions

Do all work and answer all questions on this sheet. There are 30 possible points, distributed as indicated.

A) Consider this statement about integer m, n : “If $m \cdot n$ is even, then m is even or n is even.”

(1) (5) Give the *contrapositive* of this statement (any correct form is OK).

(2) (5) Give the *converse* of this statement.

B) (10) Give the negation of this statement “For every real number x , there exists a real number y such that $x \cdot y = 1$.” Is the statement or its negation true?

C) (10) Construct the truth table for the statement “ $(P \text{ and } (P \text{ implies } Q)) \text{ implies } Q$ ” (related to the *modus ponens* inference in classical logic).