

Name: _____ Quiz Score: _____ /20

Quiz 2: Friday, January 30, 2015

To receive full credit, show all work necessary to justify answers and all steps of solutions and derivations clearly, in logical sequence, using notation developed in class. Write proofs in complete sentences (with proper capitalization, punctuation, subject, verb, etc.). Partial credit will be given only for significant progress toward a solution.

1. (10 pts) Complete each of the following definitions.

(a) A integer n is said to be *even* if

(b) A set is said to be *closed* under a binary operation if

(c) The number _____ is said to be the *multiplicative identity element* of \mathbb{Z} since

2. (10 pts) Prove the following proposition.

Proposition. *If x is an even integer and y is an odd integer, then the product xy is even.*

Proof.