

MATH 1200 (SECTION E): HOMEWORK 2

DUE DATE: OCT. 11 AT THE BEGINNING OF LECTURE

1. Consider each of the following pairs of statements. Decide whether each is true or false. If it is true, prove it. If it is false, explain why. Let m and n be integers.

- (a) i. If m is even, then mn is even.
ii. If mn is even then m is even.

- (b) i. If $m - n$ is even then both m and n are even or both m and n are odd.
ii. If $5m - 2n$ is even then both m and n are even or both m and n are odd.

2. (a) Look at the following statements:

A: m and n are odd.
Write the negation of A.

(b) (Bonus) Prove the following statement by the method of contrapositive.
If mn is odd then both m and n are odd.