# Weekly Homework 1

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Introduction to Abstract Math

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**Theorem 2.15.** An odd integer times an odd integer results in an odd integer.

*Proof.* Assume m and n are both odd integers.
Let m = 2k+1, and n = 2j+1
So mn = 4kj+2k+2j+1
Which factors into 2(2kj+k+j)+1.

By definition 2.9 (2kj+k+j) is an integer.
so by definition 2.10 mn is an odd integer.

$\square$

**Theorem 2.12.** The product of an odd integer and an even integer is odd.

*Proof.* The product of 2 times 3 is 6, which is an even number.

$\square$