# CS 13: Mathematical Foundations of Computing — Fall 2023

## Lecturcises 02 (due Saturday, October 14 @ 11:30pm)

**Directions**: *These problems were presented within the last week as "exercises" in lecture. During lecture, you were able to collaborate with students, TAs, and Prof. Blank. Your task now is to write up solutions to these problems* ***without discussing them with anyone****. You should submit the lecturcise (we are doing only one now, though this one has two parts) below on Gradescope. Note that your submissions will be graded on* correctness, *not effort. Some of these results appear in the Definitions and Theorems handout for use in future proofs - proofs which cite this exact result without any non-trivial manipulation will earn a 0.*

## Evens

### (1) Adjacent integers

Prove that for all integers $n$, $n(n+1)$ is even.

### (2) Odd squares

Prove that if $k$ is an odd integer, $8|k^2 - 1$.