

MATH 233
Fall 2018
Quiz #1 B

Name Lastname :
ID :

Duration: 50 minutes.

Remark: Show your thinking/work. Do not just write a number as a result.

1. Consider all bitstrings of length 16. A bitstring is made up of bits that are either 0 or 1. For example, 00100111 is a bitstring of length 8.
 - a) How many possible bitstrings of length 16 are there?
 - b) How many of bitstrings of length 16 contain a single 1 or a single 0?

2. Prove the following identity **using induction**:

$$1 + 8 + 27 + \dots + n^3 = (n^2 \cdot (n+1)^2) / 4$$