

# CSCI 480, Winter 2018

## Math Exercises # 1

YOUR NAME HERE

Due date: Wednesday, January 24, midnight.

### Exercises for Section 1.1

C. Find the following cardinalities

30.  $|\{\{1, 4\}, a, b, \{\{3, 4\}\}, \{\emptyset\}\}|$

### Exercises for Section 1.3

A. List all the subsets of the following sets.

8.  $\{\{0, 1\}, \{0, 1, \{2\}\}, \{0\}\}$

### Exercises for Section 1.4

A. Find the indicated sets.

12.  $\{X \in \mathcal{P}(\{1, 2, 3\}) : 2 \in X\}$

B. Suppose that  $|A| = m$  and  $|B| = n$ . Find the following cardinalities.

18.  $|\mathcal{P}(A \times \mathcal{P}(B))|$

**Exercises for Section 2.10** Negate the following sentences.

8. If  $x$  is a rational number and  $x \neq 0$ , then  $\tan(x)$  is not a rational number.