

## Homework One. Due Monday, August 31.

### Part One.

Do problems 4,6,8,10,12,14,16,18,22,26,28 from Chapter 1.2 in the book. Problem 28 counts three times as much as the others.

### Part Two.

Suppose  $X$  and  $Y$  are finite sets. Let

$$Y^X$$

be the set of  $f$  such that

- (i)  $f$  is function;
- (ii) the domain of  $f$  equals  $X$ ;
- (iii) the range of  $f$  is a subset of  $Y$ .

Show that

$$|Y^X| = |Y|^{|X|}.$$

I suggest you induct on  $|X|$ .