

Homework #1

p25:

0.1

a-c

0.2 Write formal descriptions of the following sets:

- a) the set containing the numbers 150, 250, and 300
- b) the set containing all numbers greater than 149.
- c) the set containing all numbers greater than 149 and less than 301
- d) the set containing the empty string
- e) the set containing nothing at all

0.3 Let A be the set {a,b,c,d} and B be the set {a,d}

0.4

0.4.1 If A has a elements, and B has b elements, what is the largest number of elements that could be in  $A \cup B$ ? Explain your answer. Explain the situation when the set  $A \cup B$  contains fewer than the maximum possible number of elements.

0.4.2 If A has a elements, and B has b elements, what is the largest number of elements that could be in  $A \cap B$ ? Explain your answer. Explain the situation when the set  $A \cap B$  contains fewer than the maximum possible number of elements.

0.5

0.6

0.7

0.10

0.11

0.12

Prove by Induction:

For any natural number n:

$$1+3+5+\dots+(2n-1) = n^2$$

Type up your answers and print them out for the instructor!