

# CS161 Fall 16 Homework 1

*Due at beginning of class – 10/14*

*NO late period*

**name:**

**id:**

In the following questions there are always 26 letters (a-z) and 10 digits (0-9). **Identifiers** start with a letter, followed by letters or digits. **Passwords** are strings of letters and digits. Where appropriate, state which rule you used, show the formula you used to derive your answer.

1. How many functions are there from letters to digits?

2. How many one to one functions are there from digits to letters?

3. How many 3 character identifiers are there?

4. How many 3 character passwords are there with at least one digit?

5. At least how many cards are needed so that three are of the same suit

6. How many positive integers less than 1000 are divisible by 7?

7. How many positive integers less than 1000 are divisible by 7 or 11?

8. At least how many people are needed such that at least two have a specific birthday (e.g. the 4th of July)?