Math 109-D04
Test 1

SUBMISSION DEADLINE: 2:30pm Pacific Time
Submit on D2L

Number of Questions: 7
Total Marks: 22

Show all your work for full marks.
You MAY use the course website (notes, videos etc) and your own notes
You may NOT copy from others (classmates, tutors, Chegg etc)

Submit jpg or pdf files
Feel free to handwrite your solutions and take photos of your work

1. [4 marks] Let $U = \{a, b, w, x, y, z\}$, $R = \{a, w, z\}$ and $S = \{b, w, y\}$. Find:
a) $S' \cap R$
b) $(R \cup S)'$

2. [3 marks] Draw a Venn diagram based on the following information. A travel company surveys 80 people to find out where they have travelled.
34 have been to Asia
34 have been to the Caribbean
34 have been to Europe
12 have been to Asia and the Caribbean
11 have been to Asia and Europe
14 have been to the Caribbean and Europe
4 have been to Asia, the Caribbean and Europe

3. [3 marks] You have 12 songs on your phone. How many ways are there to:
a) rank all the songs based on how much you like them?
b) select six of the songs and rank those six songs based on how much you like them?
c) play six songs in a row, if songs can be repeated?

4. [3 marks] Your network password uses digits 1-8, is seven digits long, reads the same forwards as backwards, and doesn't contain the same digit twice in a row. How many possibilities are there for your network password?

5. [3 marks] Twenty business students and ten technology students are interviewing for jobs. Five of the students are selected for a second interview. How many selections include at least three business students?

6. [2 marks] An experiment has four possible outcomes: w,x,y and z. Write out all the events that contain at least three outcomes.

7. [4 marks] An experiment has four possible outcomes: B,C,D and E. The probability of C is 0.09 and the probability of E is 0.31. Outcome D is four times as likely as outcome B.
a) Find the probability distribution of the experiment.
b) Let $F = \{C, D\}$. Find $Pr(F)$.