

Math 109-D04
Assignment 1

Deadline: Wed Jan 27, 2:30pm Pacific Time
Submit on D2L

Number of Questions: 4
Total Marks: 12

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

Covers Sections 3.1-3.5

1. [3 marks] Let $U = \{2, 4, 6, 7, 8, 9\}$, $A = \{2, 7, 9\}$ and $B = \{6, 7, 8, 9\}$. Find:
 - a) $A \cap B$
 - b) $B \cup A$
 - c) $B' \cap A$

2. [1 mark] A taxi company has 400 vehicles and each one is electric or airconditioned (or both). Of the 400 vehicles, 350 are electric and 325 are airconditioned. How many vehicles are electric and airconditioned?

3. [3 marks] Draw a Venn diagram based on the following information. A music streaming service surveys 60 students to find out their musical preferences while studying.
 - 17 listen to classical
 - 22 listen to hiphop
 - 31 listen to lounge
 - 3 listen to classical and hiphop
 - 10 listen to classical and lounge
 - 4 listen to hiphop and lounge
 - 1 listens to classical, hiphop and lounge

4. [5 marks]
 - a) How many ways are there to arrange four novels and three business books in a row so that the novels are grouped together and the business books are grouped together?
 - b) A serial number uses digits 0-9 and capital letters A-F. How many serial numbers are six symbols long and have no repeated symbols?
 - c) A team has 20 employees. How many ways are there to select five employees to attend a conference and select three other employees to attend a team-building event?