Quiz #1, Due: 8/31
Math 181 (Discrete Structures), Fall 2022

Problem 1 is worth 4 points (1 pt each part), problem 2 is worth 4 points (2 pts each part), and problem 3 is worth 2 points, for a total of 10 points. Remember to *show your work* and *explain your answers* on all problems!

1. In this problem, let the universal set be $U = \{1, 2, 3, \ldots, 10\}$, let $A = \{1, 4, 7, 10\}$, let $B = \{1, 2, 3, 4, 5\}$, and let $C = \{2, 4, 6, 8\}$. List the elements of the following sets.

   (a) $A \setminus B$ (Note that the book uses the notation $A - B$ for this set.)

   (b) A^c (Note that the book uses the notation $\overline{A}$ for this set.)

   (c) $(A \cap B) \setminus C$

   (d) $(A \cap B)^c \cup C$

2. In this problem, there is a group of 191 students, of which 10 are taking French, business, and music; 36 are taking French and business; 20 are taking French and music; 18 are taking business and music; 65 are taking French; 76 are taking business; and 63 are taking music. (For a hint on how to use Venn diagrams for this problem, see Example 1.1.2 in the book.)

   (a) How many are taking business and neither French nor music?

   (b) How many are taking French or business (or both)?

3. List all the partitions of the set $\{a, b, c\}$.