Math 102

Name _____

(Section 1.5A)

1.5A Set Operations

1. Assume A = {1, 3, 5, 7}, B = {2, 5, 7, 8} and C = {1, 3, 6} are subsets of the universal set
    U = {1, 2, 3, 4, 5, 6, 7, 8, 9}. Determine each of the following (use good notation and circle your answers):

    (a) $A \cup B$

    (b) $A \cap B$

    (c) $A \cap C$

    (d) $A - B$

    (e) $A' \cup B'$

    (f) $A' \cap (B \cup C')$

    (g) $(A \cap B) \cup (A \cap C)$
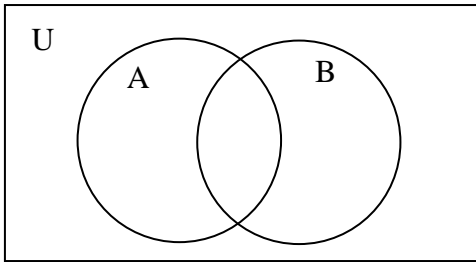
    (h) $A' \cap B'$

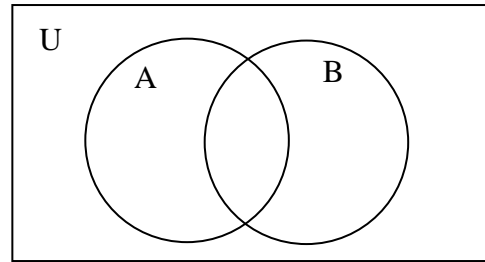   (i) $(A \cup B)'$

    (j) $(A - C) \cup (B - C)$

    (k) Show that in this problem, $n(A \cup B) = n(A) + n(B) - n(A \cap B)$ is satisfied.

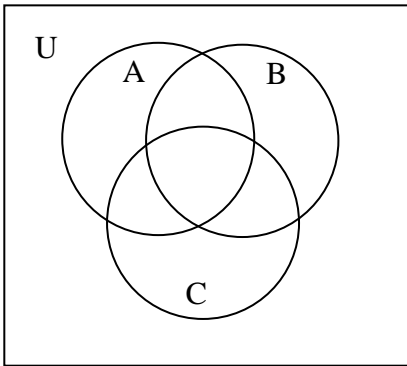2. In each Venn Diagram below, shade the region associated with the given set.

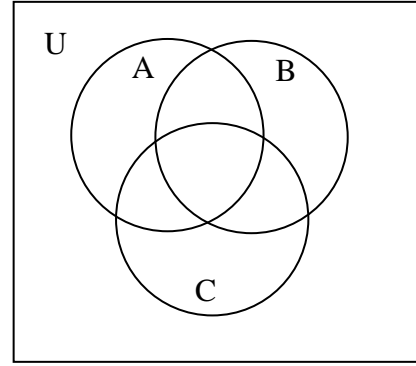   a) $(A \cup B') - A$

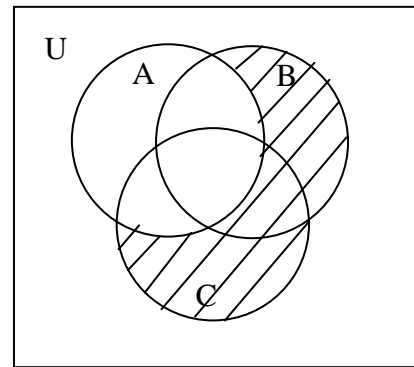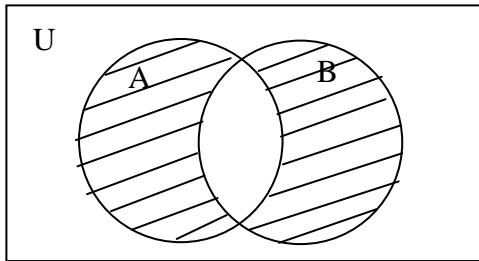   b) $A \cup (B \cup A)'$

   c) $A \cap (B \cup C')'$

   d) $(B \cap A)' \cup (C - A)$

3. In each, name the shaded region using the letters A, B, C, and the set operations.

4. The **number of elements** is written in each region of the following Venn diagram. Find the following:

a. $n(A \cup B)$

b. $n(C')$

c. $n(U)$

d. $n((A \cup C) - (B \cup C))$

e. $n((A \cap C) - B)$