

To construct a Venn diagram illustrating the elements in A, B, C, and U, start by placing elements into the innermost region and work outward.

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Example 3: Construct a Venn diagram illustrating the following sets:

$$A = \{1, 3, 6, 10\}$$

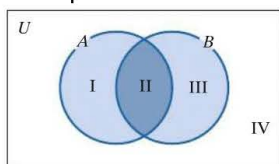
$$B = \{4, 7, 9, 10\}$$

$$C = \{3, 4, 5, 8, 9, 10\}$$

$$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

If two specific sets represent the same regions of a general Venn diagram, then this deductively proves that the two sets are equal.

Example 4: Use the Venn diagram below to solve this exercise.



a. Which region represents  $(A \cup B)'$ ?

b. Which region represents  $A' \cap B'$ ?

c. Based on parts (a) and (b), what can you conclude?