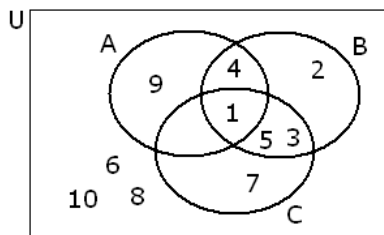


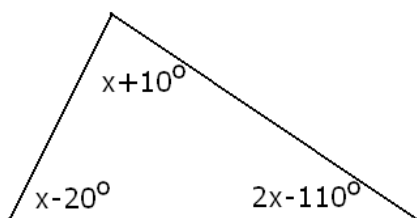
Sample Exam for Exam 2 - Answers

For problems 1-7. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 4, 9\}$, $B = \{1, 2, 3, 4, 5\}$, and $C = \{1, 3, 5, 7\}$

1. Draw a Venn diagram depicting these sets.



2. Find $(B \cup C)' = \{7\}$
3. Find $(A \cap C)' \cup (A' \cap C) = \{1, 2, 3, 5, 6, 7, 8, 10\}$
4. Find $(A \cup B) \setminus C' = \{1, 7\}$
5. List all subsets of C .
- \emptyset
- $\{1\}$ $\{3\}$ $\{5\}$ $\{7\}$
- $\{1, 3\}$ $\{1, 5\}$ $\{1, 7\}$ $\{3, 5\}$ $\{3, 7\}$ $\{5, 7\}$
- $\{1, 3, 5\}$ $\{1, 3, 7\}$ $\{1, 5, 7\}$ $\{3, 5, 7\}$
- $\{1, 3, 5, 7\}$
6. How many 5-element subsets does U have? (You don't have to list these sets.) **252**
7. Is it true that $(A \cap B) \cap C' \subseteq (A \cup B) \cap C'$? **yes**
8. Find $n(B)$ if we know that $n(A) = 19$, $n(A \cup B) = 37$, and $n(A \cap B) = 8$. **26**
9. Find the measure of an inner angle in a regular polygon of 16 sides. **157.5°**
10. A club has 20 members.
- (a) In their annual election, they elect their president, vice president, and secretary. How many different outcome is possible? **6840**
- (b) If everyone shakes hands with everyone in the room, how many handshakes took place? **190**
11. Find x based on the picture below. **75°**



12. Find the perimeter and area of the parallelogram shown below. $P = 22$ unit, $A = 21$ unit²

