Name: _____ QUIZ 3 MATH 300
August 29, 2024

1. Suppose $A = \{0, 2, 4, 6, 8\}$ and $B = \{4, 5, 6, 7, 8\}$ have universal set $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8\}$. Find:

   (a) $A - B =$

   (b) $A \cap B =$

   (c) $\overline{B} =$

   (d) $B \cap \overline{B} =$

   (e) $A \cup B =$

   (f) $\overline{A \cup B} =$

2. Suppose sets A and B are in a universal set U. Draw Venn diagrams for $\overline{A \cup B}$ and $\overline{A} \cap \overline{B}$. Based on your drawings, do you think it's true that $\overline{A \cup B} = \overline{A} \cap \overline{B}$?

3. Suppose $A_1 = \{a, b, c, d, e\}$, $A_2 = \{d, e, f\}$ and $A_3 = \{e, f, g, h\}$.

   (a) $\bigcup_{i=1}^{3} A_i =$

   (b) $\bigcap_{i=1}^{3} A_i =$

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   (a) $\overline{A} =$

   (b) $B - A =$

   (c) $B - \overline{A} =$

   (d) $A \cup \overline{A} =$

   (e) $A \cap \overline{A} =$

   (f) $\overline{A \cap \overline{A}} =$

2. Suppose sets A and B are in a universal set U. Draw Venn diagrams for $\overline{A \cap B}$ and $\overline{A} \cup \overline{B}$. Based on your drawings, do you think it's true that $\overline{A \cap B} = \overline{A} \cup \overline{B}$?

3. Suppose $A_1 = \{a, b, c, d, e\}$, $A_2 = \{d, e, f\}$ and $A_3 = \{f, g, h\}$.

   (a) $\bigcup_{i=1}^{3} A_i =$

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