Quiz I

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Show all work! Little or no credit will be given for correct answers that lack sufficient justification.

Exercise 1. Let $U = \{p, q, r, s, t, u, v, w, x, y, z\}$, $A = \{p, r, t, u, v\}$, $B = \{t, u, v, x, y\}$, and $C = \{x, w, z\}$. Find each.

3 a) $A \cap B = \{t, u, v\}$

3 b) $B \cup C = \{p, q, r, s, w, x, y, z\}$

3 c) $B' = \{p, q, r, s, w, z\}$

3 d) $(B \cup C) \cap A' = \{s, w, x, y, z\}$

$A' = \{q, s, w, x, y, z\}$

3 e) $B - A = \{x, y\}$

Exercise 2. Suppose $A \times B = \{(a, 1), (b, 1), (a, 2), (b, 2), (a, 3), (b, 3)\}$. Find sets $A$ and $B$.

$A = \{a, b\}$

$B = \{1, 2, 3\}$
Exercise 3. Let $U = \{x | x \in N \text{ and } x < 25\} = \{1, 2, 3, \ldots, 23, 24\}$
$W = \{x | x \in N \text{ and } 5 < x < 15\} = \{6, 7, 8, 9, 10, 11, 12, 13, 14\}$
$X = \{x | x \in E \text{ and } x < 10\} = \{2, 4, 6, 8\}$
$Y = \{x | x \in N \text{ and } 20 < x < 25\} = \{21, 22, 23, 24\}$
$Z = \{x | x \in O \text{ and } x < 13\} = \{1, 3, 5, 7, 9, 11\}$

Find each set.

a) $(X \cup Y) \cap Z$

\[\{2, 4, 6, 8, 21, 22, 23, 24\} \cap \{1, 3, 5, 7, 9, 11\} = \emptyset\]

b) $W' \cap X'$

\[\{1, 3, 5, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24\} \cap \{1, 3, 5, 7, 9, 10, 11, 12\} = \{1, 3, 5, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24\}\]

ALL DONE!!!