

Combined Union – Intersection

1. Let $A = \{1, 2, 3\}$, $B = \{2, 3, 4\}$, and $C = \{3, 4, 5\}$. Find $(A \cup B) \cap C$ and $(A \cap B) \cup C$.
2. Let $D = \{a, b, c\}$, $E = \{b, c, d\}$, and $F = \{c, d, e\}$. Find $(D \cup E) \cap F$ and $(D \cap E) \cup F$.
3. Let $G = \{2, 4, 6\}$, $H = \{1, 3, 5\}$, and $I = \{3, 4, 6\}$. Find $(G \cup H) \cap I$ and $(G \cap H) \cup I$.
4. Let $J = \{\text{red, blue, green}\}$, $K = \{\text{blue, purple, green}\}$, and $L = \{\text{red, purple, yellow}\}$. Find $(J \cup K) \cap L$ and $(J \cap K) \cup L$.
5. Let $M = \{\text{apple, banana, orange}\}$, $N = \{\text{banana, grape, kiwi}\}$, and $O = \{\text{orange, kiwi, pear}\}$. Find $(M \cup N) \cap O$ and $(M \cap N) \cup O$.
6. Let $P = \{1, 3, 5\}$, $Q = \{2, 4, 6\}$, and $R = \{1, 2, 3\}$. Find $(P \cup Q) \cap R$ and $(P \cap Q) \cup R$.
7. Let $S = \{a, b, c\}$, $T = \{b, c, d\}$, and $U = \{c, d, e\}$. Find $(S \cup T) \cap U$ and $(S \cap T) \cup U$.
8. Let $V = \{\text{red, blue, green}\}$, $W = \{\text{blue, purple, green}\}$, and $X = \{\text{red, purple, yellow}\}$. Find $(V \cup W) \cap X$ and $(V \cap W) \cup X$.
9. Let $Y = \{\text{apple, banana, orange}\}$, $Z = \{\text{banana, grape, kiwi}\}$, and $A = \{\text{orange, kiwi, pear}\}$. Find $(Y \cup Z) \cap A$ and $(Y \cap Z) \cup A$.
10. Let $B = \{1, 3, 5\}$, $C = \{2, 4, 6\}$, and $D = \{1, 2, 3\}$. Find $(B \cup C) \cap D$ and $(B \cap C) \cup D$.