

PROBLEM 1. **Proposition.** Let A, B, C be sets. Then

$$C \setminus (A \cap B) = (C \setminus A) \cup (C \setminus B).$$

- (a) Draw a Venn diagram that shows the Proposition is reasonable.
- (b) Prove the Proposition.

PROBLEM 2. Let $A = \{1, 2\}$ and $B = \{a, b, c\}$. Write all of the elements of $A \times B$.

PROBLEM 3. Let A, B, C be sets. Show that

$$A \times (B \cap C) = (A \times B) \cap (A \times C).$$