1. Write down the definition of $A \cup B$.

2. Write down the definition of $\bigcup_{i \in I} A_i$.

3. Fill in the blanks: “$(a, b) = (c, d)$ if and only if _____ and _____.”
4. Write down the negation of the following statement: “for every $\epsilon > 0$, there exists $\delta > 0$ such that for any $x \in \text{dom}(f)$, whenever $|x - x_0| < \delta$ we have that $|f(x) - f(x_0)| < \epsilon$.”

5. Fill in the blank: “A function $f : A \rightarrow B$ is said to be injective if for every $x, y \in A$, $f(x) = f(y)$ implies ______.”

6. If $A = \{0, 1\}$ and $B = \{a, b\}$, calculate $A \times B$.

7. Indicate a bijection between $\mathbb{Z}$ and $\mathbb{N}$. 
8. Write down the principle of mathematical induction.

9. In the town of Barberia, there is a barber who shaves all the men who do not shave themselves. What can you say about this barber?

10. What is the difference between \{1, 2\}, (1, 2), and ]1, 2[? (Note: assume French notation!)