

- Let X be a set on which we can define addition, i.e. for any $x, y \in X$, $x + y \in X$ is defined.
- Let $A, B \subseteq X$. Then we define

$$A + B = \{a + b : a \in A, b \in B\}.$$

- Now assume that we have some partition of X given by $(A_n)_{n \in I}$.

- Question: is it always true that $A_1 + A_2$ is some A_i ??