**Problem 1 Set definition**

Let \( A = \{1, 2, 3, 4\}, \ B = \{2x \mid (x \in \mathbb{N}) \land x < 5\}, \ C = \mathcal{P}(\{2, 3\}) \). Show the full set of members in each of the following sets using curly-brace notation (not set-builder or operator-defined notation):

\[ B = \]  

\[ C = \]  

\[ |C| = \]  

\[ A \cup B = \]  

\[ A \cap B = \]  

\[ A \setminus B = \]  

\[ A \cup C = \]  

\[ A \cap C = \]  

\[ \{x \mid x \in A \land x \in B\} = \]  

\[ \{x \mid x \in A \lor x \in B\} = \]  

\[ \{x \mid x \in A \land 2x \in A\} = \]  

\[ \left\{ x \mid (x \in B) \land (\forall y \in A \ . \ x > y) \right\} = \]  

\[ \left\{ X \mid (X \in C) \land (\exists y \in X \ . \ y \in B) \right\} = \]