Introduction to set notation

A set S is just a collection of objects.
Some sets are finite (e.g., $\{1, 2, 3, 5\}$) and some are infinite (e.g., the set $\mathbb{Z}$ of integers).
We can specify a set explicitly, as in $\{1, 2, 3, 5\}$, or implicitly using "set-builder notation?":

- $\{x \in \mathbb{Z} | 0 < x < 6, x \neq 4\}$

Note that $\{x \in \mathbb{Z} | 0 < x < 6, x \neq 4\} = \{1, 2, 3, 5\}$.

The emptyset is denoted by $\emptyset$ or by $\{\}$, and is the set that has no elements.