1. Write each of the sets below as simply as possible:

    (a) What is $\{1, 2\} - \{2, 4\}$?

    (b) What is $(1, 2) - [2, 4]$?

    (c) What is $[1, 2] - [2, 4]$?

    (d) What is $\{1, 2\} \cup \{2, 4\}$?

    (e) What is $(1, 2) \cup [2, 4]$?

    (f) What is $[1, 2] \cup (2, 4)$?

    (g) What is $\{1, 2\} \cap \{2, 4\}$?

    (h) What is $[1, 2] \cap [2, 4]$?

    (i) What is $\{1, 2\} \times \{2, 4\}$?

    (j) What is $\mathcal{P}\{1, 2\}$?

2. $A \cap B \subseteq A \cup B$

3.

$$A \cup \bigcap_{i \in I} B_i = \bigcap_{i \in I} (A \cup B_i)$$

4. If $a, b, c \in \mathbb{R}$ with $a < b$ and $c < 0$, then $ac > bc$.

5. $\forall x, y, z \in \mathbb{R}, |x + y + z| \leq |x| + |y| + |z|.$