1. Explicitly list the elements using non-conditional set notation in each of the following sets. You may or may not need ellipses.

(a) \( \{2n \mid n \in \mathbb{Z}\} \)

(b) \( \{-n \mid n \in \mathbb{N}\} \)

(c) \( \{5 - n/2 \mid n \in \mathbb{Z} \text{ and } n > 7\} \)

2. Determine if each of the following elements is in each set. Use \( \in \) or \( \notin \).

(a) Is 3 an element of \( \{2x + 11 \mid x \in \mathbb{Z}\}\)?

(b) Is \( \mathbb{Z} \) an element of \( \mathbb{Z} \)?

(c) Is \( \emptyset \) an element of \( \{\{\}, \{\}\}\)?

(d) Is 5 an element of \( \mathbb{Q} \)?

(e) Is 5 an element of \( \mathbb{C} - \mathbb{R} \)?

3. List all the elements in \( \mathcal{P}(\{\emptyset, \mathcal{P}(\{1\})\}) \)

4. Prove that:

\[ \{x \in \mathbb{R} \mid |x - 4| < x\} = (2, \infty) \]

5. For all sets \( A \) and \( B \), prove that \( A = B \) iff \( \mathcal{P}(A) = \mathcal{P}(B) \).