The Rules for Roman Numerals

1. Basic Symbols:
- I represents 1
- V represents 5
- X represents 10
- L represents 50
- C represents 100
- D represents 500
- M represents 1000

2. Repeating Numerals:
- Numerals can be repeated up to three times to denote addition. For example, III represents 3 (I + I + I), and XXX represents 30 (X + X + X).

3. Subtractive Notation:
- To avoid repeating a numeral four times in a row, subtractive notation is used. Place a smaller numeral before a larger one to indicate subtraction.
- For example, IV represents 4 (5 - 1), and IX represents 9 (10 - 1).

4. Subtraction Limit:
- Subtraction can only be done with numerals that are powers of ten (I, X, C), and only one smaller numeral can be placed before a larger one.

5. No Zero:
- Roman numerals do not include the concept of zero.

6. Grouping:
- Larger numerals can be formed by combining smaller numerals, and the values are added together.
- For example, XX represents 20 (X + X), and CC represents 200 (C + C).

7. Single Subtraction:
- Only one smaller numeral can be used to subtract from a larger numeral. For instance, 49 is represented as XLIX (50 - 10 + 1).

8. No Repetition with Subtraction:
- Subtractive notations cannot be applied to numerals already involved in a grouping. For example, 99 is written as XCIX (100 - 10 + 1), not as IC.

9. Ascending Order:
- Roman numerals are written in descending order from left to right, with the larger numerals coming before the smaller ones.

10. Maximum Value:
- The Roman numeral system has no specific symbol for numbers greater than 3999. Representing larger numbers may involve using a bar or other notation.

Understanding these rules is crucial for converting Arabic numerals to Roman numerals and vice versa. Applying these principles ensures that Roman numerals are concise, unambiguous, and consistent in their representation of numbers.