

## 1. Roman letters

Roman Numeral	Hindu-Arabic Equivalent
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

There are a few rules for writing numbers with Roman numerals.

- Repeating a numeral up to three times represents addition of the number. For example, III represents  $1 + 1 + 1 = 3$ . Only I, X, C, and M can be repeated; V, L, and D cannot be, and there is no need to do so.
- Writing numerals that decrease from left to right represents addition of the numbers. For example, LX represents  $50 + 10 = 60$  and XVI represents  $10 + 5 + 1 = 16$ .
- To write a number that otherwise would take repeating of a numeral four or more times, there is a subtraction rule. Writing a smaller numeral to the left of a larger numeral represents subtraction. For example, IV represents  $5 - 1 = 4$  and IX represents  $10 - 1 = 9$ . To avoid ambiguity, the only pairs of numerals that use this subtraction rule are

Roman Numeral	Hindu-Arabic Equivalent
IV	$4 = 5 - 1$
IX	$9 = 10 - 1$
XL	$40 = 50 - 10$
XC	$90 = 100 - 10$
CD	$400 = 500 - 100$
CM	$900 = 1000 - 100$

- **Examples:**

1. DCXLVIII
2. MMDXLIX
3. MCMXLIV
4. MCMXCIX