

Roman numerals

It is the numeral system that originated in ancient Rome. This numeral system is based on certain letters, which are given values and are used as numerals. The following are the seven number symbols used in the Roman numeral system, and their values.

Symbols	I	V	X	L	C	D	M
Value	1	5	10	50	100	500	1000

Seven letters of English alphabet, i.e. I, V, X, L, C, D and M, are used to represent Roman numerals. Roman numerals do not have a symbol for zero. Roman numerals are read from left to right, and are arranged from the largest to the smallest. Multiplication, division and other complex operations were difficult to perform on Roman numerals. So Hindu-Arabic numerals were used. The Roman numerals are used in some clocks.

The Roman numerals for the numbers 1 - 15 are shown below:

1	2	3	4	5	6	7	8	9	¹ ₀	¹ ₁	12	13	14	15
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV

Rules for Roman numerals:

- (a) If a symbol is repeated, its value is added as many times as it occurs.
For example, if the letter I is repeated thrice, then its value is three.
III = 1+1+1= 3
XX is 10 + 10 = 20
- (b) In Roman numerals, a symbol is not repeated more than thrice. The symbols V, L and D are never repeated.
- (c) If a symbol of smaller value is written to the right of a symbol of greater value, then its value gets added to the symbol of greater value.
For example, in case of VI, I is written to the right of V. It means that 1

should be added to 5.

$$VI = 5 + 1 = 6$$

$$XII = 10 + 2 = 12 \text{ and}$$

$$LXV = 50 + 10 + 5 = 65$$

- (d) If a symbol of smaller value is written to the left of a symbol of greater value, then its value is subtracted from the symbol of greater value.

For example, in case of IV, I is written to the left of V. It means that 1 should be subtracted from 5.

$$IV = 5 - 1 = 4$$

$$IX = 10 - 1 = 9 \text{ and}$$

$$XL = 50 - 10 = 40$$

- (e) The symbols V, L and D are never written to the left of a symbol of greater value, so V, L and D are never subtracted.

For example, we write 15 as XV and not VX.

- (f) The symbol I can be subtracted from V and X only.
For example, the value of IV is 4 and the value of IX is 9.

- (g) The symbol X can be subtracted from L, M and C only.
For example, X is subtracted from L to get 40, which is represented by XL.

Following these rules we get

1 = I

10 = X

2 = II

20 = XX

3 = III

30 = XXX

4 = IV

40 = XL

5 = V

50 = L

6 = VI

60 = LX

7 = VII

70 = LXX

8 = VIII

80 = LXXX

9 = IX

90 = XC