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**LESSON**  
PART 2



# 2



## ROMAN NUMERALS

### READY ... STEADY

**A. Write the following numbers in Hindu-Arabic numerals.**

1. XVI                      2. LX                      3. XC                      4. XXIX

**B. Write the following numbers in Roman-form.**

1. 36                      2. 89                      3. 58                      4. 76

We have already learnt that the Roman empire used different symbols for counting numbers. The Romans used seven different symbols in various combinations according to a set of rules. Roman numerals have been passed down through the centuries and are used even today.

There are seven basic Roman numerals. These are : **I V X L C D M**

The ten basic Indo-Arabic numerals are : **1, 2, 3, 4, 5, 6, 7, 8, 9, 0**

Some basic Roman numerals and their Indo-Arabic equivalents are :

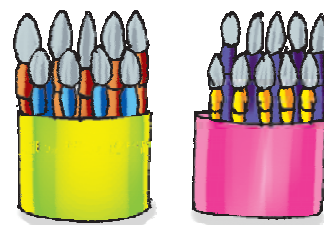
Roman Numerals	I	V	X	L	C	D	M
Indo-Arabic Values	1	5	10	50	100	500	1000

### RULES FOR WRITING ROMAN NUMERALS

We follow some basic rules for writing Roman numerals. These are :

**Rule 1 : The 7 basic symbols can be used in different combinations involving addition or subtraction to form numbers.**

**Example :** II = 1 + 1 = 2  
 XX = 10 + 10 = 20  
 IV = 5 - 1 = 4 (I is on the left)



**Rule 2 : Symbols I, X, C, M can be repeated 3 times at any one given time. Symbols V, L, D can be used only once at any one instance.**

**Example :** III = 1 + 1 + 1 = 3



$$\begin{aligned}XXX &= 10 + 10 + 10 = 30 \\CCC &= 100 + 100 + 100 = 300 \\MMM &= 1000 + 1000 + 1000 = 3000\end{aligned}$$

*Only I, X, C are used for both addition and subtraction.*

**Rule 3 :** When the smaller symbol is placed on the right of the bigger symbol, then we add the symbols.

**Example :**

$$\begin{aligned}XI &= 10 + 1 = 11 \\CX &= 100 + 10 = 110 \\MC &= 1000 + 100 = 1100\end{aligned}$$

**Rule 4 :** When the smaller symbol is placed on left of the bigger symbol, then we subtract.

**Example :**

$$\begin{aligned}IX &= 10 - 1 = 9 \\XC &= 100 - 10 = 90 \\CM &= 1000 - 100 = 900\end{aligned}$$

**Rule 5 :** Symbol I can be added to or subtracted from the next two symbols V, X only.

**Example :**

$$\begin{aligned}IV &= 5 - 1 = 4 \\VI &= 5 + 1 = 6 \\IX &= 10 - 1 = 9 \\XI &= 10 + 1 = 11\end{aligned}$$

**Rule 6 :** Symbol X can be added to or subtracted from the next two symbols L, C only.

**Example :**

$$\begin{aligned}XL &= 50 - 10 = 40 \\LX &= 50 + 10 = 60 \\XC &= 100 - 10 = 90 \\CX &= 100 + 10 = 110\end{aligned}$$

**Rule 7 :** Symbol C can be added or subtracted from the next two symbols D, M only.

**Example :**

$$\begin{aligned}CD &= 500 - 100 = 400 \\DC &= 500 + 100 = 600 \\CM &= 1000 - 100 = 900 \\MC &= 1000 + 100 = 1100\end{aligned}$$

## Exercise 2.1

### A. Write the Roman numerals for the following.

- |          |                      |            |                      |           |                      |
|----------|----------------------|------------|----------------------|-----------|----------------------|
| 1. 30 =  | <input type="text"/> | 2. 45 =    | <input type="text"/> | 3. 200 =  | <input type="text"/> |
| 4. 310 = | <input type="text"/> | 5. 11 =    | <input type="text"/> | 6. 71 =   | <input type="text"/> |
| 7. 500 = | <input type="text"/> | 8. 24 =    | <input type="text"/> | 9. 55 =   | <input type="text"/> |
| 10. 46 = | <input type="text"/> | 11. 1200 = | <input type="text"/> | 12. 350 = | <input type="text"/> |

### B. Write the Indo-Arabic numerals for the following.

- |           |                      |             |                      |              |                      |
|-----------|----------------------|-------------|----------------------|--------------|----------------------|
| 1. DCL =  | <input type="text"/> | 2. XXII =   | <input type="text"/> | 3. XLI =     | <input type="text"/> |
| 4. LXXV = | <input type="text"/> | 5. XC =     | <input type="text"/> | 6. XXXIV =   | <input type="text"/> |
| 7. XCIX = | <input type="text"/> | 8. MMMD =   | <input type="text"/> | 9. CCCIX =   | <input type="text"/> |
| 10. LVI = | <input type="text"/> | 11. MCCIV = | <input type="text"/> | 12. CDXXII = | <input type="text"/> |

### C. Find out the answers for the following.

1. Is XCV lesser or greater than 90 ?
2. Is DL lesser or greater than 595 ?
3. Is DCCIX lesser or greater than 700 ?
4. Is CDLXX lesser or greater than 525 ?
5. Is LXVI lesser or greater than 60 ?
6. Is CCXL lesser or greater than 210 ?

## READING LARGER ROMAN NUMERALS

To understand bigger Roman numerals, we follow the rules and break the number up like this :

**Example :** Write CMLXXXII in Indo-Arabic numerals.

Step 1 : CM + LXXX + II

Step 2 :  $CM = 1000 - 100 = 900$

Step 3 :  $LXXX = 50 + 10 + 10 + 10 = 80$

Step 4 :  $II = 1 + 1 = 2$

Therefore,  $CMLXXXII = 900 + 80 + 2 = 982$

## Exercise 2.2

### A. Write the Indo-Arabic numerals for the following.

- |            |                      |           |                      |            |                      |
|------------|----------------------|-----------|----------------------|------------|----------------------|
| 1. MCMXLIV | <input type="text"/> | 2. MMCDXX | <input type="text"/> | 3. LXXIX   | <input type="text"/> |
| 4. MCMV    | <input type="text"/> | 5. CCXCIX | <input type="text"/> | 6. MMCDXX  | <input type="text"/> |
| 7. DCCLXVI | <input type="text"/> | 8. MDXXV  | <input type="text"/> | 9. MMCDLIX | <input type="text"/> |

### B. Write the Roman numerals for the following.

- |           |                      |           |                      |           |                      |
|-----------|----------------------|-----------|----------------------|-----------|----------------------|
| 1. 2010 = | <input type="text"/> | 2. 2534 = | <input type="text"/> | 3. 3250 = | <input type="text"/> |
| 4. 1971 = | <input type="text"/> | 5. 1603 = | <input type="text"/> | 6. 2006 = | <input type="text"/> |
| 7. 1954 = | <input type="text"/> | 8. 1320 = | <input type="text"/> | 9. 2919 = | <input type="text"/> |

### C. Cross out the wrongly written Roman numerals.

- |             |                      |              |                      |            |                      |
|-------------|----------------------|--------------|----------------------|------------|----------------------|
| 1. VVV =    | <input type="text"/> | 2. XI =      | <input type="text"/> | 3. LLIV =  | <input type="text"/> |
| 4. XM =     | <input type="text"/> | 5. CCCL =    | <input type="text"/> | 6. DDD =   | <input type="text"/> |
| 7. XXII =   | <input type="text"/> | 8. LC =      | <input type="text"/> | 9. ICC =   | <input type="text"/> |
| 10. CCCVI = | <input type="text"/> | 11. MCCCIX = | <input type="text"/> | 12. XLIX = | <input type="text"/> |

### D. Fill in the circles with $>$ , $<$ or $=$

- |          |                      |        |            |                      |        |
|----------|----------------------|--------|------------|----------------------|--------|
| 1. CMDVI | <input type="text"/> | 474    | 2. MMMDVII | <input type="text"/> | 2744   |
| 3. MMDIX | <input type="text"/> | 2509   | 4. 714     | <input type="text"/> | DCCXIV |
| 5. MDIX  | <input type="text"/> | CMXLII | 6. MXIV    | <input type="text"/> | MDXXII |

# WORKSHEET

Match the following Roman numerals with the Indo-Arabic numerals.

- |              |      |
|--------------|------|
| 1. CMLXXVIII | 109  |
| 2. MCCL      | 2322 |
| 3. XXXIV     | 1344 |
| 4. CIX       | 642  |
| 5. DCXLII    | 449  |
| 6. MMCCCXXII | 768  |
| 7. CCCL      | 34   |
| 8. DCCLXVIII | 1250 |
| 9. MCCCXLIV  | 350  |
| 10. CDXLIX   | 978  |

## MATHS LAB

**Objective :** To play with Roman numerals

**Materials Required :** Roman numeral cards from the Math kit



**Steps :**

1. Write your name in capital letters.

**Example :** SOURAV

2. Give numeral values to each alphabet like A = 1, B = 2, C = 3 ... Z = 26.
3. Find the numeral value for the name.

$$\begin{array}{|c|} \hline S \\ \hline 19 \\ \hline \end{array} + \begin{array}{|c|} \hline O \\ \hline 15 \\ \hline \end{array} + \begin{array}{|c|} \hline U \\ \hline 21 \\ \hline \end{array} + \begin{array}{|c|} \hline R \\ \hline 18 \\ \hline \end{array} + \begin{array}{|c|} \hline A \\ \hline 1 \\ \hline \end{array} + \begin{array}{|c|} \hline V \\ \hline 22 \\ \hline \end{array} = \begin{array}{|c|} \hline 96 \\ \hline \end{array}$$

4. Use Roman numeral cards from the kit and express the number in Roman numerals in the given box.

$$96 = \text{XCVI}$$