LESSON NOTE

Year 5 || Roman numerals

Reading and writing Roman numerals to 1000, and recognising years



Name: _____ Date: _____

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Overview

In this lesson you will

- learn the seven Roman symbols and their values
- use the adding rule and the subtracting rule
- read Roman numerals up to 1000
- write numbers up to 1000 in Roman numerals
- recognise years written in Roman numerals

Key words

Roman numeral	A number written using the Roman symbols, for example **XIV**.
Symbol	One of the seven letters used: **I**, **V**, **X**, **L**, **C**, **D**, **M**.
Partition	Split a number into parts by place value, such as 368 = 300 + 60 + 8.
Place value	The value of a digit because of its place: ones, tens, hundreds, thousands.
Subtracting pair	A smaller symbol written just before a larger one, such as **IX**.

SEE Starter: warm up your number skills

1. Work out 50 + 10 + 10 + 1 [1]

2. Partition 368 into hundreds, tens and ones. [1]

3. Work out 100 − 10 [1]

4. Year 4 recap: what is the value of **XII**? [1]

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CONCEPT 1

Concept 1 || Meet the seven symbols

INVESTIGATE How it works

The Romans did not use the digits 0 to 9. Instead, they used letters as symbols for numbers. There are only seven symbols, and every Roman numeral is built from them.

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

Key rule

There is **no symbol for zero**. The Romans did not need one, because their numerals do not use place value columns.

Memory trick, in order: **I** Value **X**ylophones **L**ike **C**ows **D**o **M**ilk.

SOLVE Worked examples

Example 1 [1 mark]

Question: What is the value of the symbol **L**?

- **Step 1: Recall the seven symbols**
  I = 1, **V** = 5, **X** = 10, **L** = 50, **C** = 100, **D** = 500, **M** = 1000
- **Step 2: Find the symbol**
  L stands for 50.

ANSWER 50

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Example 2 [1 mark]

Question: Which Roman symbol stands for 500?

- **Step 1: Recall the seven symbols**
  I = 1, V = 5, X = 10, L = 50, C = 100, D = 500, M = 1000
- **Step 2: Match the value**
  500 is written as D.

ANSWER D

Example 3 [2 marks]

Question: Put these symbols in order, smallest first: C, V, M, X

- **Step 1: Write the value of each symbol**
  C = 100, V = 5, M = 1000, X = 10
- **Step 2: Order the values, smallest first**
  5, 10, 100, 1000
- **Step 3: Change the values back into symbols**
  V, X, C, M

ANSWER V, X, C, M

Example 4 [2 marks]

Question: How many X symbols make the same value as C?

- **Step 1: Write the values**
  X = 10 and C = 100
- **Step 2: Divide**
  100 ÷ 10 = 10

ANSWER 10

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Example 5

[2 marks]

Question: How many **L** symbols make the same value as **M**?

- **Step 1: Write the values**
  L = 50 and **M** = 1000
- **Step 2: Divide**
  50 × 2 = 100, so 50 × 20 = 1000
  1000 ÷ 50 = 20

ANSWER **20**

Example 6

[2 marks]

Question: How much greater is **D** than **C**?

- **Step 1: Write the values**
  D = 500 and **C** = 100
- **Step 2: Find the difference**
  500 − 100 = 400

ANSWER **400**

MASTER

Practice questions

1. What is the value of **D**? [1]

2. Which Roman symbol stands for 50? [1]

3. Put these symbols in order, smallest first: **D**, **I**, **L**, **M**, **X** [2]

4. How many **V** symbols make the same value as **L**? [2]

5. How many **V** symbols make the same value as **C**? [2]

6. How much greater is **L** than **X**? [2]

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CONCEPT 2

Concept 2 || The adding rule

INVESTIGATE How it works

When the symbols are written from **largest to smallest**, we add their values together. For example, **LXVIII** is fifty, ten, five and three ones.

L	+	X	+	V	+	I	+	I	+	I	=	68
50		10		5		1		1		1		

Key rule

Largest to smallest means add.

I, **X**, **C** and **M** can be repeated, but **no more than three times** in a row. So 3 is **III**, but 4 is not **IIII**.

V, **L** and **D** are **never repeated**: 10 is **X**, never **VV**.

SOLVE Worked examples

Example 1 [2 marks]

Question: Write **XII** as an ordinary number.

- **Step 1: Write the value of each symbol**

X	I	I
10	1	1

- **Step 2: Check the order**
  The symbols go from largest to smallest, so every value is added.
- **Step 3: Add the values**
  10 + 1 + 1 = 12

ANSWER 12

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Example 2

[2 marks]

Question: Write XXVII as an ordinary number.

- **Step 1: Write the value of each symbol**

X	X	V	I	I
10	10	5	1	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  10 + 10 + 5 + 1 + 1 = 27

ANSWER 27

Example 3

[2 marks]

Question: Write LXVIII as an ordinary number.

- **Step 1: Write the value of each symbol**

L	X	V	I	I	I
50	10	5	1	1	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  50 + 10 + 5 + 1 + 1 + 1 = 68

ANSWER 68

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Example 4

[2 marks]

Question: Write **CLXXV** as an ordinary number.

- **Step 1: Write the value of each symbol**

C	L	X	X	V
100	50	10	10	5

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  100 + 50 + 10 + 10 + 5 = 175

ANSWER 175

Example 5

[2 marks]

Question: Write **CCCLXI** as an ordinary number.

- **Step 1: Write the value of each symbol**

C	C	C	L	X	I
100	100	100	50	10	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  100 + 100 + 100 + 50 + 10 + 1 = 361

ANSWER 361

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Example 6

[2 marks]

Question: Write **DCLXVI** as an ordinary number.

- **Step 1: Write the value of each symbol**

D	C	L	X	V	I
500	100	50	10	5	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  500 + 100 + 50 + 10 + 5 + 1 = 666

ANSWER 666

MASTER

Practice questions

1. Write **VIII** as an ordinary number. [2]

2. Write **XXXIII** as an ordinary number. [2]

3. Write **LVI** as an ordinary number. [2]

4. Write **CXV** as an ordinary number. [2]

5. Write **CCLXXII** as an ordinary number. [2]

6. Write **DCCCLXXXVIII** as an ordinary number. [2]

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CONCEPT 3

Concept 3 || The subtracting rule

INVESTIGATE

How it works

To avoid writing a symbol four times, the Romans wrote a **smaller symbol just before a larger one**. This means subtract the smaller from the larger. So **IV** means one less than five, which is 4.

I can go before **V** and **X**	**IV** 5 − 1 = 4	**IX** 10 − 1 = 9
X can go before **L** and **C**	**XL** 50 − 10 = 40	**XC** 100 − 10 = 90
C can go before **D** and **M**	**CD** 500 − 100 = 400	**CM** 1000 − 100 = 900

Key rule

Smaller before larger means subtract.

Only these **six pairs** are allowed: **IV**, **IX**, **XL**, **XC**, **CD** and **CM**. A pair like **IC** or **VX** is never correct.

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SOLVE Worked examples

Example 1 [2 marks]

Question: Write **IX** as an ordinary number.

- **Step 1: Compare the two symbols**
  I = 1 and **X** = 10
  The smaller symbol is written before the larger one, so we subtract.
- **Step 2: Subtract**
  10 − 1 = 9

ANSWER 9

Example 2 [2 marks]

Question: Write **XL** as an ordinary number.

- **Step 1: Compare the two symbols**
  X = 10 and **L** = 50
  The smaller symbol is written before the larger one, so we subtract.
- **Step 2: Subtract**
  50 − 10 = 40

ANSWER 40

Example 3 [2 marks]

Question: Write **CD** as an ordinary number.

- **Step 1: Compare the two symbols**
  C = 100 and **D** = 500
  The smaller symbol is written before the larger one, so we subtract.
- **Step 2: Subtract**
  500 − 100 = 400

ANSWER 400

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Example 4

[2 marks]

Question: Write **XIX** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **IX**.

X	IX
TENS	ONES

- **Step 2: Work out each part**
  X = 10
  IX = 10 − 1 = 9
- **Step 3: Add the parts**
  10 + 9 = 19

ANSWER 19

Example 5

[2 marks]

Question: Write **XCIV** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **XC**, **IV**.

XC	IV
TENS	ONES

- **Step 2: Work out each part**
  XC = 100 − 10 = 90
  IV = 5 − 1 = 4
- **Step 3: Add the parts**
  90 + 4 = 94

ANSWER 94

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Example 6

[2 marks]

Question: Write **CMXLIX** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **CM**, **XL**, **IX**.

CM	XL	IX
HUNDREDS	TENS	ONES

- **Step 2: Work out each part**
  CM = 1000 − 100 = 900
  XL = 50 − 10 = 40
  IX = 10 − 1 = 9
- **Step 3: Add the parts**
  900 + 40 + 9 = 949

ANSWER **949**

MASTER Practice questions

1. Write **IV** as an ordinary number. [2]

2. Write **XC** as an ordinary number. [2]

3. Write **CM** as an ordinary number. [2]

4. Write **XXIV** as an ordinary number. [2]

5. Write **XLIX** as an ordinary number. [2]

6. Write **CDXC** as an ordinary number. [2]

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CONCEPT 4

Concept 4 || Reading Roman numerals up to 1000

INVESTIGATE How it works

A long Roman numeral is easier to read if you split it into **place value groups**: hundreds, then tens, then ones. Work out each group on its own, then add the groups together.

CM	LXXX	III
HUNDREDS	TENS	ONES
900	**80**	**3**

900 + 80 + 3 = **983**

Key rule

Split, work out, add.

Each group is either a subtracting pair, or symbols written largest to smallest that are added.

SOLVE Worked examples

Example 1 [2 marks]

Question: Write **XXXVIII** as an ordinary number.

- **Step 1: Split into place value groups**

XXX	VIII
TENS	ONES

- **Step 2: Work out each group**

  XXX = 10 + 10 + 10 = 30

  VIII = 5 + 1 + 1 + 1 = 8

- **Step 3: Add the groups**

  30 + 8 = 38

ANSWER **38**

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Example 2

[2 marks]

Question: Write **LXXIV** as an ordinary number.

- **Step 1: Split into place value groups**

LXX	IV
TENS	ONES

- **Step 2: Work out each group**

  LXX = 50 + 10 + 10 = 70

  IV = 5 − 1 = 4

- **Step 3: Add the groups**

  70 + 4 = 74

ANSWER 74

Example 3

[2 marks]

Question: Write **CXLVII** as an ordinary number.

- **Step 1: Split into place value groups**

C	XL	VII
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  C = 100

  XL = 50 − 10 = 40

  VII = 5 + 1 + 1 = 7

- **Step 3: Add the groups**

  100 + 40 + 7 = 147

ANSWER 147

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Example 4

[2 marks]

Question: Write **CCCXCIX** as an ordinary number.

- **Step 1: Split into place value groups**

CCC	XC	IX
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  CCC = 100 + 100 + 100 = 300

  XC = 100 − 10 = 90

  IX = 10 − 1 = 9

- **Step 3: Add the groups**

  300 + 90 + 9 = 399

ANSWER 399

Example 5

[2 marks]

Question: Write **DCCLIV** as an ordinary number.

- **Step 1: Split into place value groups**

DCC	L	IV
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  DCC = 500 + 100 + 100 = 700

  L = 50

  IV = 5 − 1 = 4

- **Step 3: Add the groups**

  700 + 50 + 4 = 754

ANSWER 754

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Example 6

[2 marks]

Question: Write **CMLXXXIII** as an ordinary number.

- **Step 1: Split into place value groups**

CM	LXXX	III
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  CM = 1000 − 100 = 900

  LXXX = 50 + 10 + 10 + 10 = 80

  III = 1 + 1 + 1 = 3

- **Step 3: Add the groups**

  900 + 80 + 3 = 983

ANSWER 983

MASTER

Practice questions

1. Write **XLVI** as an ordinary number. [2]

2. Write **LXXXIX** as an ordinary number. [2]

3. Write **CLIII** as an ordinary number. [2]

4. Write **CCXCVII** as an ordinary number. [2]

5. Write **DCXLIV** as an ordinary number. [2]

6. Write **CMXCIX** as an ordinary number. [2]

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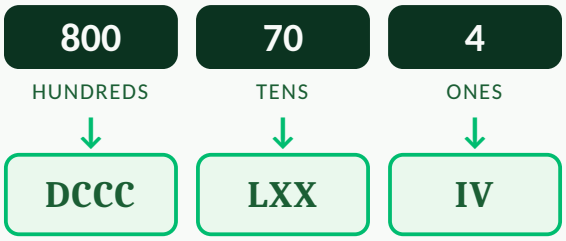
CONCEPT 5

Concept 5 || Writing numbers as Roman numerals up to 1000

INVESTIGATE

How it works

To write a number in Roman numerals, **partition** it into hundreds, tens and ones. Write each part in Roman numerals, then join the parts with the largest first.



874 = **DCCC** + **LXX** + **IV** = **DCCCLXXIV**

This table shows every part you will ever need for numbers up to 999. Notice that each row follows the same pattern.

	1	2	3	4	5	6	7	8	9
Ones	I	II	III	IV	V	VI	VII	VIII	IX
Tens	X	XX	XXX	XL	L	LX	LXX	LXXX	XC
Hundreds	C	CC	CCC	CD	D	DC	DCC	DCCC	CM

Key rule

Partition, convert, join.

If a digit is 0, write nothing for that place. There is no Roman symbol for zero.

Never jump straight to a subtracting pair across places: 99 is **XC** + **IX** = **XCIX**, not **IC**.

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SOLVE Worked examples

Example 1 [2 marks]

Question: Write **23** in Roman numerals.

- **Step 1: Partition the number by place value**
  23 = 20 + 3
- **Step 2: Write each part in Roman numerals**
  20 = 10 + 10 = **XX**
  3 = 1 + 1 + 1 = **III**
- **Step 3: Join the parts, largest first**
  XX + **III** = **XXIII**
- **Step 4: Check by reading it back**
  20 + 3 = 23 ✓

ANSWER **XXIII**

Example 2 [2 marks]

Question: Write **48** in Roman numerals.

- **Step 1: Partition the number by place value**
  48 = 40 + 8
- **Step 2: Write each part in Roman numerals**
  40 = 50 − 10 = **XL**
  8 = 5 + 1 + 1 + 1 = **VIII**
- **Step 3: Join the parts, largest first**
  XL + **VIII** = **XLVIII**
- **Step 4: Check by reading it back**
  40 + 8 = 48 ✓

ANSWER **XLVIII**

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Example 3

[2 marks]

Question: Write **165** in Roman numerals.

- **Step 1: Partition the number by place value**
  165 = 100 + 60 + 5
- **Step 2: Write each part in Roman numerals**
  100 = **C**
  60 = 50 + 10 = **LX**
  5 = **V**
- **Step 3: Join the parts, largest first**
  C + **LX** + **V** = **CLXV**
- **Step 4: Check by reading it back**
  100 + 60 + 5 = 165 ✓

ANSWER **CLXV**

Example 4

[2 marks]

Question: Write **409** in Roman numerals.

- **Step 1: Partition the number by place value**
  409 = 400 + 0 + 9
  There are 0 tens, so nothing is written for the tens.
- **Step 2: Write each part in Roman numerals**
  400 = 500 − 100 = **CD**
  9 = 10 − 1 = **IX**
- **Step 3: Join the parts, largest first**
  CD + **IX** = **CDIX**
- **Step 4: Check by reading it back**
  400 + 9 = 409 ✓

ANSWER **CDIX**

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Example 5

[2 marks]

Question: Write **590** in Roman numerals.

- **Step 1: Partition the number by place value**
  590 = 500 + 90 + 0
  There are 0 ones, so nothing is written for the ones.
- **Step 2: Write each part in Roman numerals**
  500 = **D**
  90 = 100 − 10 = **XC**
- **Step 3: Join the parts, largest first**
  D + **XC** = **DXC**
- **Step 4: Check by reading it back**
  500 + 90 = 590 ✓

ANSWER **DXC**

Example 6

[2 marks]

Question: Write **874** in Roman numerals.

- **Step 1: Partition the number by place value**
  874 = 800 + 70 + 4
- **Step 2: Write each part in Roman numerals**
  800 = 500 + 100 + 100 + 100 = **DCCC**
  70 = 50 + 10 + 10 = **LXX**
  4 = 5 − 1 = **IV**
- **Step 3: Join the parts, largest first**
  DCCC + **LXX** + **IV** = **DCCCLXXIV**
- **Step 4: Check by reading it back**
  800 + 70 + 4 = 874 ✓

ANSWER **DCCCLXXIV**

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MASTER

Practice questions

1 Write **37** in Roman numerals. [2]

2 Write **92** in Roman numerals. [2]

3 Write **204** in Roman numerals. [2]

4 Write **356** in Roman numerals. [2]

5 Write **718** in Roman numerals. [2]

6 Write **1000** in Roman numerals. [2]

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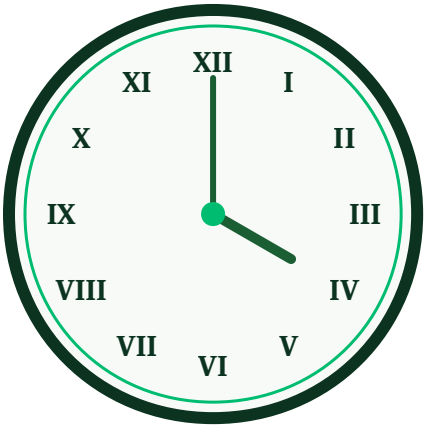
CONCEPT 6

Concept 6 || Years in Roman numerals

INVESTIGATE

How it works

Years are often written in Roman numerals. Thousands are written with **M**: **M** is 1000 and **MM** is 2000. After the thousands, read the hundreds, tens and ones exactly as before.



Roman numerals around you

You can find Roman numerals on clock faces, at the start of book chapters, after the names of kings and queens (Elizabeth **II**), and at the end of films to show the year they were made.

Some clocks show **IIII** instead of **IV** for 4. That is an old clockmakers' tradition. In your own work, always write **IV**.

This clock shows 4 o'clock.

Key rule

Read the thousands first. Then split the rest into hundreds, tens and ones.

MCM starts many years from the 1900s: **M** + **CM** = 1000 + 900 = 1900.

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SOLVE Worked examples

Example 1 [2 marks]

Question: A newspaper is dated **MMXXVI**. What year is this?

- **Step 1: Split into place value groups**

MM	XX	VI
THOUSANDS	TENS	ONES

- **Step 2: Work out each group**

  MM = 1000 + 1000 = 2000

  XX = 10 + 10 = 20

  VI = 5 + 1 = 6

- **Step 3: Add the groups**

  2000 + 20 + 6 = 2026

ANSWER 2026

Example 2 [2 marks]

Question: A football trophy is engraved with **MCMLXVI**. What year is this?

- **Step 1: Split into place value groups**

M	CM	LX	VI
THOUSANDS	HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  M = 1000

  CM = 1000 − 100 = 900

  LX = 50 + 10 = 60

  VI = 5 + 1 = 6

- **Step 3: Add the groups**

  1000 + 900 + 60 + 6 = 1966

ANSWER 1966

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Example 3

[2 marks]

Question: A bridge has **MDCCCLXX** carved into its stone. What year was it built?

- **Step 1: Split into place value groups**

M	DCCC	LXX
THOUSANDS	HUNDREDS	TENS

- **Step 2: Work out each group**

  M = 1000

  DCCC = 500 + 100 + 100 + 100 = 800

  LXX = 50 + 10 + 10 = 70

- **Step 3: Add the groups**

  1000 + 800 + 70 = 1870

ANSWER 1870

Example 4

[2 marks]

Question: A film ends with the year **MMX**. What year is this?

- **Step 1: Split into place value groups**

MM	X
THOUSANDS	TENS

- **Step 2: Work out each group**

  MM = 1000 + 1000 = 2000

  X = 10

- **Step 3: Add the groups**

  2000 + 10 = 2010

ANSWER 2010

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Example 5

[2 marks]

Question: Write the year **2008** in Roman numerals.

- **Step 1: Partition the number by place value**
  2008 = 2000 + 0 + 0 + 8
  There are 0 hundreds, so nothing is written for the hundreds.
  There are 0 tens, so nothing is written for the tens.
- **Step 2: Write each part in Roman numerals**
  2000 = 1000 + 1000 = **MM**
  8 = 5 + 1 + 1 + 1 = **VIII**
- **Step 3: Join the parts, largest first**
  MM + VIII = MMVIII
- **Step 4: Check by reading it back**
  2000 + 8 = 2008 ✓

ANSWER **MMVIII**

Example 6

[2 marks]

Question: Write the year **1994** in Roman numerals.

- **Step 1: Partition the number by place value**
  1994 = 1000 + 900 + 90 + 4
- **Step 2: Write each part in Roman numerals**
  1000 = **M**
  900 = 1000 − 100 = **CM**
  90 = 100 − 10 = **XC**
  4 = 5 − 1 = **IV**
- **Step 3: Join the parts, largest first**
  M + CM + XC + IV = MCMXCIV
- **Step 4: Check by reading it back**
  1000 + 900 + 90 + 4 = 1994 ✓

ANSWER **MCMXCIV**

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MASTER

Practice questions

1. A book was printed in **MMXIV**. What year is this? [2]

2. A coin shows the year **MCMLXXX**. What year is this? [2]

3. A building has **MDCCCXII** above its door. What year is this? [2]

4. A film ends with the year **MMI**. What year is this? [2]

5. Write the year **1945** in Roman numerals. [2]

6. Write the year **2019** in Roman numerals. [2]

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Common mistakes

Mistake	Why it is wrong	Correct
Writing **IIII** for 4	A symbol cannot be repeated more than three times.	**IV**
Writing **VV** for 10	**V**, **L** and **D** are never repeated.	**X**
Reading **XC** as 110	A smaller symbol before a larger one means subtract.	**90**
Writing **IC** for 99	**I** can only go before **V** or **X**. Partition: 90 + 9.	**XCIX**
Writing **IIL** for 48	Only one smaller symbol can go before a larger one. Partition: 40 + 8.	**XLVIII**
Trying to write a zero in 409	There is no zero symbol. Leave out the empty place.	**CDIX**
Reading **MCMX** as 2110	**CM** is a subtracting pair: 1000 + 900 + 10.	**1910**

Summary

The seven symbols

I = 1, **V** = 5, **X** = 10, **L** = 50, **C** = 100, **D** = 500, **M** = 1000

Adding rule

Largest to smallest means add: **LXVI** = 50 + 10 + 5 + 1 = 66. Repeat **I**, **X**, **C**, **M** no more than three times. Never repeat **V**, **L**, **D**.

Subtracting rule

Smaller before larger means subtract. Only six pairs: **IV** 4, **IX** 9, **XL** 40, **XC** 90, **CD** 400, **CM** 900.

Reading

Split into place value groups, work out each group, add the groups.

Writing

Partition by place value, convert each part, join the parts with the largest first. Write nothing for a zero.

Years

Read the thousands first: **MM** = 2000, **MCM** = 1900.

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Outperform

OUTPERFORM Challenge questions

These questions mix everything from the lesson. Show all your working.

1 Work out **XLV** + **XXIX**. Give your answer in Roman numerals. [3]

2 Which is greater, **CDXC** or **CCCXCIX**? By how much? Give the difference in Roman numerals. [3]

3 A film was made in **MCMXCVII**. How many years after that is **MMXXVI**? [3]

4 Use the symbols **C**, **X** and **I** exactly once each. Write every correct Roman numeral you can make and give its value. [4]

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5 Ade says **IL** is 49 because 50 − 1 = 49. Explain his mistake and write 49 correctly. [2]

6 Work out double **CDL**. Give your answer in Roman numerals. [2]

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Answers and worked solutions

Answer summary

Starter	**1.** 71	**2.** 300 + 60 + 8	**3.** 90	**4.** 12
Concept 1	**1.** 500 **5.** 20	**2.** **L** **6.** 40	**3.** **I**, **X**, **L**, **D**, **M**	**4.** 10
Concept 2	**1.** 8 **5.** 272	**2.** 33 **6.** 888	**3.** 56	**4.** 115
Concept 3	**1.** 4 **5.** 49	**2.** 90 **6.** 490	**3.** 900	**4.** 24
Concept 4	**1.** 46 **5.** 644	**2.** 89 **6.** 999	**3.** 153	**4.** 297
Concept 5	**1.** **XXXVII** **5.** **DCCXVIII**	**2.** **XCII** **6.** **M**	**3.** **CCIV**	**4.** **CCCLVI**
Concept 6	**1.** 2014 **5.** **MCMXLV**	**2.** 1980 **6.** **MMXIX**	**3.** 1812	**4.** 2001
Outperform	**1.** **LXXIV** **5.** **XLIX**	**2.** **CDXC** is greater, by **XCI** **6.** **CM**	**3.** 29 years	**4.** 111, 109, 91

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Starter

Starter || Question 1

[1 mark]

Question: Work out 50 + 10 + 10 + 1

- **Step 1: Add the tens**
  50 + 10 + 10 = 70
- **Step 2: Add the ones**
  70 + 1 = 71

ANSWER **71**

Starter || Question 2

[1 mark]

Question: Partition 368 into hundreds, tens and ones.

- **Step 1: Read each digit by its place**
  3 hundreds = 300, 6 tens = 60, 8 ones = 8
- **Step 2: Write the partition**
  368 = 300 + 60 + 8

ANSWER **300 + 60 + 8**

Starter || Question 3

[1 mark]

Question: Work out 100 − 10

- **Step 1: Subtract**
  100 − 10 = 90

ANSWER **90**

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Starter || Question 4 [1 mark]

Question: Year 4 recap: what is the value of **XII**?

- **Step 1: Write the value of each symbol**
  X = 10, **I** = 1, **I** = 1
- **Step 2: Add the values**
  10 + 1 + 1 = 12

ANSWER **12**

Concept 1

Concept 1 || Question 1 [1 mark]

Question: What is the value of **D**?

- **Step 1: Recall the seven symbols**
  I = 1, **V** = 5, **X** = 10, **L** = 50, **C** = 100, **D** = 500, **M** = 1000
- **Step 2: Find the symbol**
  D stands for 500.

ANSWER **500**

Concept 1 || Question 2 [1 mark]

Question: Which Roman symbol stands for 50?

- **Step 1: Recall the seven symbols**
  I = 1, **V** = 5, **X** = 10, **L** = 50, **C** = 100, **D** = 500, **M** = 1000
- **Step 2: Match the value**
  50 is written as **L**.

ANSWER **L**

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Concept 1 || Question 3 [2 marks]

Question: Put these symbols in order, smallest first: **D**, **I**, **L**, **M**, **X**

- **Step 1: Write the value of each symbol**
  D = 500, **I** = 1, **L** = 50, **M** = 1000, **X** = 10
- **Step 2: Order the values, smallest first**
  1, 10, 50, 500, 1000
- **Step 3: Change the values back into symbols**
  I, **X**, **L**, **D**, **M**

ANSWER **I, X, L, D, M**

Concept 1 || Question 4 [2 marks]

Question: How many **V** symbols make the same value as **L**?

- **Step 1: Write the values**
  V = 5 and **L** = 50
- **Step 2: Divide**
  50 ÷ 5 = 10

ANSWER **10**

Concept 1 || Question 5 [2 marks]

Question: How many **V** symbols make the same value as **C**?

- **Step 1: Write the values**
  V = 5 and **C** = 100
- **Step 2: Divide**
  5 × 2 = 10, so 5 × 20 = 100
  100 ÷ 5 = 20

ANSWER **20**

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Concept 1 || Question 6 [2 marks]

Question: How much greater is **L** than **X**?

- **Step 1: Write the values**
  L = 50 and **X** = 10
- **Step 2: Find the difference**
  50 − 10 = 40

ANSWER 40

Concept 2

Concept 2 || Question 1 [2 marks]

Question: Write **VIII** as an ordinary number.

- **Step 1: Write the value of each symbol**

V	I	I	I
5	1	1	1

- **Step 2: Check the order**
  The symbols go from largest to smallest, so every value is added.
- **Step 3: Add the values**
  5 + 1 + 1 + 1 = 8

ANSWER 8

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Concept 2 || Question 2

[2 marks]

Question: Write XXXIII as an ordinary number.

- **Step 1: Write the value of each symbol**

X	X	X	I	I	I
10	10	10	1	1	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  10 + 10 + 10 + 1 + 1 + 1 = 33

ANSWER 33

Concept 2 || Question 3

[2 marks]

Question: Write LVI as an ordinary number.

- **Step 1: Write the value of each symbol**

L	V	I
50	5	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  50 + 5 + 1 = 56

ANSWER 56

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Concept 2 || Question 4

[2 marks]

Question: Write CXV as an ordinary number.

- **Step 1: Write the value of each symbol**

C	X	V
100	10	5

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  100 + 10 + 5 = 115

ANSWER 115

Concept 2 || Question 5

[2 marks]

Question: Write CCLXXII as an ordinary number.

- **Step 1: Write the value of each symbol**

C	C	L	X	X	I	I
100	100	50	10	10	1	1

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  100 + 100 + 50 + 10 + 10 + 1 + 1 = 272

ANSWER 272

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Concept 2 || Question 6 [2 marks]

Question: Write **DCCCLXXXVIII** as an ordinary number.

- **Step 1: Write the value of each symbol**

D	C	C	C	L	X	X	X	V	
500	100	100	100	50	10	10	10	5	

- **Step 2: Check the order**

  The symbols go from largest to smallest, so every value is added.

- **Step 3: Add the values**

  500 + 100 + 100 + 100 + 50 + 10 + 10 + 10 + 5 + 1 + 1 + 1 = 888

ANSWER 888

Concept 3

Concept 3 || Question 1 [2 marks]

Question: Write **IV** as an ordinary number.

- **Step 1: Compare the two symbols**

  I = 1 and **V** = 5

  The smaller symbol is written before the larger one, so we subtract.

- **Step 2: Subtract**

  5 − 1 = 4

ANSWER 4

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Concept 3 || Question 2

[2 marks]

Question: Write **XC** as an ordinary number.

- **Step 1: Compare the two symbols**

  X = 10 and **C** = 100

  The smaller symbol is written before the larger one, so we subtract.

- **Step 2: Subtract**

  100 − 10 = 90

ANSWER 90

Concept 3 || Question 3

[2 marks]

Question: Write **CM** as an ordinary number.

- **Step 1: Compare the two symbols**

  C = 100 and **M** = 1000

  The smaller symbol is written before the larger one, so we subtract.

- **Step 2: Subtract**

  1000 − 100 = 900

ANSWER 900

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Concept 3 || Question 4

[2 marks]

Question: Write **XXIV** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **IV**.

XX	IV
TENS	ONES

- **Step 2: Work out each part**
  XX = 10 + 10 = 20
  IV = 5 − 1 = 4
- **Step 3: Add the parts**
  20 + 4 = 24

ANSWER 24

Concept 3 || Question 5

[2 marks]

Question: Write **XLIX** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **XL**, **IX**.

XL	IX
TENS	ONES

- **Step 2: Work out each part**
  XL = 50 − 10 = 40
  IX = 10 − 1 = 9
- **Step 3: Add the parts**
  40 + 9 = 49

ANSWER 49

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Concept 3 || Question 6 [2 marks]

Question: Write **CDXC** as an ordinary number.

- **Step 1: Find the subtracting pairs**
  Look for a smaller symbol written just before a larger one: **CD**, **XC**.

CD	XC
HUNDREDS	TENS

- **Step 2: Work out each part**
  CD = 500 − 100 = 400
  XC = 100 − 10 = 90
- **Step 3: Add the parts**
  400 + 90 = 490

ANSWER 490

Concept 4

Concept 4 || Question 1 [2 marks]

Question: Write **XLVI** as an ordinary number.

- **Step 1: Split into place value groups**

XL	VI
TENS	ONES

- **Step 2: Work out each group**
  XL = 50 − 10 = 40
  VI = 5 + 1 = 6
- **Step 3: Add the groups**
  40 + 6 = 46

ANSWER 46

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Concept 4 || Question 2

[2 marks]

Question: Write LXXXIX as an ordinary number.

- **Step 1: Split into place value groups**

LXXX	IX
TENS	ONES

- **Step 2: Work out each group**

  LXXX = 50 + 10 + 10 + 10 = 80

  IX = 10 − 1 = 9

- **Step 3: Add the groups**

  80 + 9 = 89

ANSWER 89

Concept 4 || Question 3

[2 marks]

Question: Write CLIII as an ordinary number.

- **Step 1: Split into place value groups**

C	L	III
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  C = 100

  L = 50

  III = 1 + 1 + 1 = 3

- **Step 3: Add the groups**

  100 + 50 + 3 = 153

ANSWER 153

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Concept 4 || Question 4

[2 marks]

Question: Write **CCXCVII** as an ordinary number.

- **Step 1: Split into place value groups**

CC	XC	VII
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  CC = 100 + 100 = 200

  XC = 100 − 10 = 90

  VII = 5 + 1 + 1 = 7

- **Step 3: Add the groups**

  200 + 90 + 7 = 297

ANSWER 297

Concept 4 || Question 5

[2 marks]

Question: Write **DCXLIV** as an ordinary number.

- **Step 1: Split into place value groups**

DC	XL	IV
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  DC = 500 + 100 = 600

  XL = 50 − 10 = 40

  IV = 5 − 1 = 4

- **Step 3: Add the groups**

  600 + 40 + 4 = 644

ANSWER 644

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Concept 4 || Question 6 [2 marks]

Question: Write **CMXCIX** as an ordinary number.

- **Step 1: Split into place value groups**

CM	XC	IX
HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  CM = 1000 − 100 = 900

  XC = 100 − 10 = 90

  IX = 10 − 1 = 9

- **Step 3: Add the groups**

  900 + 90 + 9 = 999

ANSWER **999**

Concept 5

Concept 5 || Question 1 [2 marks]

Question: Write **37** in Roman numerals.

- **Step 1: Partition the number by place value**

  37 = 30 + 7

- **Step 2: Write each part in Roman numerals**

  30 = 10 + 10 + 10 = **XXX**

  7 = 5 + 1 + 1 = **VII**

- **Step 3: Join the parts, largest first**

  XXX + **VII** = **XXXVII**

- **Step 4: Check by reading it back**

  30 + 7 = 37 ✓

ANSWER **XXXVII**

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Concept 5 || Question 2 [2 marks]

Question: Write **92** in Roman numerals.

- **Step 1: Partition the number by place value**
  92 = 90 + 2
- **Step 2: Write each part in Roman numerals**
  90 = 100 − 10 = **XC**
  2 = 1 + 1 = **II**
- **Step 3: Join the parts, largest first**
  XC + **II** = **XCII**
- **Step 4: Check by reading it back**
  90 + 2 = 92 ✓

ANSWER **XCII**

Concept 5 || Question 3 [2 marks]

Question: Write **204** in Roman numerals.

- **Step 1: Partition the number by place value**
  204 = 200 + 0 + 4
  There are 0 tens, so nothing is written for the tens.
- **Step 2: Write each part in Roman numerals**
  200 = 100 + 100 = **CC**
  4 = 5 − 1 = **IV**
- **Step 3: Join the parts, largest first**
  CC + **IV** = **CCIV**
- **Step 4: Check by reading it back**
  200 + 4 = 204 ✓

ANSWER **CCIV**

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Concept 5 || Question 4 [2 marks]

Question: Write **356** in Roman numerals.

- **Step 1: Partition the number by place value**
  356 = 300 + 50 + 6
- **Step 2: Write each part in Roman numerals**
  300 = 100 + 100 + 100 = **CCC**
  50 = **L**
  6 = 5 + 1 = **VI**
- **Step 3: Join the parts, largest first**
  CCC + **L** + **VI** = **CCCLVI**
- **Step 4: Check by reading it back**
  300 + 50 + 6 = 356 ✓

ANSWER **CCCLVI**

Concept 5 || Question 5 [2 marks]

Question: Write **718** in Roman numerals.

- **Step 1: Partition the number by place value**
  718 = 700 + 10 + 8
- **Step 2: Write each part in Roman numerals**
  700 = 500 + 100 + 100 = **DCC**
  10 = **X**
  8 = 5 + 1 + 1 + 1 = **VIII**
- **Step 3: Join the parts, largest first**
  DCC + **X** + **VIII** = **DCCXVIII**
- **Step 4: Check by reading it back**
  700 + 10 + 8 = 718 ✓

ANSWER **DCCXVIII**

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Concept 5 || Question 6 [2 marks]

Question: Write **1000** in Roman numerals.

- **Step 1: Write the number in Roman numerals**
  1000 = **M**

ANSWER **M**

Concept 6

Concept 6 || Question 1 [2 marks]

Question: A book was printed in **MMXIV**. What year is this?

- **Step 1: Split into place value groups**

MM	X	IV
THOUSANDS	TENS	ONES

- **Step 2: Work out each group**
  MM = 1000 + 1000 = 2000
  X = 10
  IV = 5 − 1 = 4
- **Step 3: Add the groups**
  2000 + 10 + 4 = 2014

ANSWER **2014**

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Concept 6 || Question 2 [2 marks]

Question: A coin shows the year **MCMLXXX**. What year is this?

- **Step 1: Split into place value groups**

M	CM	LXXX
THOUSANDS	HUNDREDS	TENS

- **Step 2: Work out each group**

  M = 1000

  CM = 1000 − 100 = 900

  LXXX = 50 + 10 + 10 + 10 = 80

- **Step 3: Add the groups**

  1000 + 900 + 80 = 1980

ANSWER **1980**

Concept 6 || Question 3 [2 marks]

Question: A building has **MDCCCXII** above its door. What year is this?

- **Step 1: Split into place value groups**

M	DCCC	X	II
THOUSANDS	HUNDREDS	TENS	ONES

- **Step 2: Work out each group**

  M = 1000

  DCCC = 500 + 100 + 100 + 100 = 800

  X = 10

  II = 1 + 1 = 2

- **Step 3: Add the groups**

  1000 + 800 + 10 + 2 = 1812

ANSWER **1812**

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Concept 6 || Question 4

[2 marks]

Question: A film ends with the year **MMI**. What year is this?

- **Step 1: Split into place value groups**

MM	I
THOUSANDS	ONES

- **Step 2: Work out each group**

  MM = 1000 + 1000 = 2000

  I = 1

- **Step 3: Add the groups**

  2000 + 1 = 2001

ANSWER 2001

Concept 6 || Question 5

[2 marks]

Question: Write the year **1945** in Roman numerals.

- **Step 1: Partition the number by place value**

  1945 = 1000 + 900 + 40 + 5

- **Step 2: Write each part in Roman numerals**

  1000 = **M**

  900 = 1000 − 100 = **CM**

  40 = 50 − 10 = **XL**

  5 = **V**

- **Step 3: Join the parts, largest first**

  M + **CM** + **XL** + **V** = **MCMXLV**

- **Step 4: Check by reading it back**

  1000 + 900 + 40 + 5 = 1945 ✓

ANSWER **MCMXLV**

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Concept 6 || Question 6

[2 marks]

Question: Write the year **2019** in Roman numerals.

- **Step 1: Partition the number by place value**

  2019 = 2000 + 0 + 10 + 9

  There are 0 hundreds, so nothing is written for the hundreds.

- **Step 2: Write each part in Roman numerals**

  2000 = 1000 + 1000 = **MM**

  10 = **X**

  9 = 10 − 1 = **IX**

- **Step 3: Join the parts, largest first**

  MM + **X** + **IX** = **MMXIX**

- **Step 4: Check by reading it back**

  2000 + 10 + 9 = 2019 ✓

ANSWER **MMXIX**

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Outperform

Outperform || Question 1

[3 marks]

Question: Work out **XLV** + **XXIX**. Give your answer in Roman numerals.

- **Step 1: Change the first numeral into a number**

  XL = 50 − 10 = 40

  V = 5

  40 + 5 = 45

- **Step 2: Change the second numeral into a number**

  XX = 10 + 10 = 20

  IX = 10 − 1 = 9

  20 + 9 = 29

- **Step 3: Add the numbers**

  45 + 29 = 74

- **Step 4: Write the total in Roman numerals**

  74 = 70 + 4

  70 = 50 + 10 + 10 = **LXX**

  4 = 5 − 1 = **IV**

  LXX + **IV** = **LXXIV**

ANSWER **LXXIV**

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Outperform || Question 2 [3 marks]

Question: Which is greater, **CDXC** or **CCCXCIX**? By how much? Give the difference in Roman numerals.

- **Step 1: Change the first numeral into a number**

  CD = 500 − 100 = 400

  XC = 100 − 10 = 90

  400 + 90 = 490

- **Step 2: Change the second numeral into a number**

  CCC = 100 + 100 + 100 = 300

  XC = 100 − 10 = 90

  IX = 10 − 1 = 9

  300 + 90 + 9 = 399

- **Step 3: Compare and subtract**

  490 is greater than 399, so **CDXC** is greater.

  490 − 399 = 91

- **Step 4: Write the difference in Roman numerals**

  91 = 90 + 1

  90 = 100 − 10 = **XC**

  1 = **I**

  XC + **I** = **XCI**

ANSWER **CDXC is greater, by XCI**

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Outperform || Question 3

[3 marks]

Question: A film was made in **MCMXCVII**. How many years after that is **MMXXVI**?

- **Step 1: Change the first year into a number**

M	CM	XC	VII
THOUSANDS	HUNDREDS	TENS	ONES

M = 1000

CM = 1000 − 100 = 900

XC = 100 − 10 = 90

VII = 5 + 1 + 1 = 7

1000 + 900 + 90 + 7 = 1997

- **Step 2: Change the second year into a number**

MM = 1000 + 1000 = 2000

XX = 10 + 10 = 20

VI = 5 + 1 = 6

2000 + 20 + 6 = 2026

- **Step 3: Find the difference**

2026 − 1997 = 29

Check: 1997 + 3 = 2000, then 2000 + 26 = 2026, and 3 + 26 = 29 ✓

ANSWER **29 years**

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Outperform || Question 4 [4 marks]

Question: Use the symbols **C**, **X** and **I** exactly once each. Write every correct Roman numeral you can make and give its value.

- **Step 1: List every possible order**
  CXI, **CIX**, **XCI**, **XIC**, **ICX**, **IXC**
- **Step 2: Check each one against the rules**
  XIC, **ICX**: **I** can only be written before **V** or **X**, so **IC** is not allowed.
  IXC: after the pair **IX**, the next symbol must be smaller, but **C** is larger, so this is not allowed.
  That leaves **CXI**, **CIX** and **XCI**.
- **Step 3: Work out each value**
  CXI = 100 + 10 + 1 = 111
  CIX = 100 + (10 − 1) = 100 + 9 = 109
  XCI = (100 − 10) + 1 = 90 + 1 = 91

ANSWER **CXI = 111, CIX = 109, XCI = 91**

Outperform || Question 5 [2 marks]

Question: Ade says **IL** is 49 because 50 − 1 = 49. Explain his mistake and write 49 correctly.

- **Step 1: Spot the mistake**
  I can only be written before **V** or **X**. So **IL** breaks the subtracting rule.
- **Step 2: Partition 49 by place value**
  49 = 40 + 9
- **Step 3: Write each part**
  40 = 50 − 10 = **XL**
  9 = 10 − 1 = **IX**
- **Step 4: Join the parts**
  XL + **IX** = **XLIX**

ANSWER **XLIX**

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Outperform || Question 6

[2 marks]

Question: Work out double **CDL**. Give your answer in Roman numerals.

- **Step 1: Change the numeral into a number**

  CD = 500 − 100 = 400

  L = 50

  400 + 50 = 450

- **Step 2: Double the number**

  450 × 2 = 900

- **Step 3: Write the answer in Roman numerals**

  900 = 1000 − 100 = **CM**

ANSWER **CM**

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