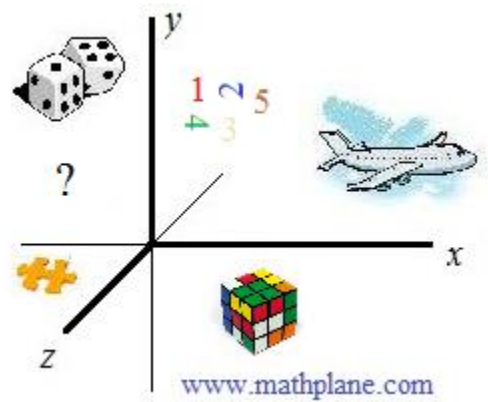


Roman Numerals

Brief Notes, 2 Puzzles, and 2 Comics...



I. Notes

Roman Numerals

Roman numerals are written as a combination of seven letters (in the table below).

The letters may be written in upper case (XVI) or lower case (xvi).

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

Simple rules for translating:

- If smaller numbers *follow* larger numbers, then *add* them.
- If smaller number *precedes* larger number, then *subtract* the smaller from the larger.

Examples:

$$CX = 100 + 10 = 110 \quad (\text{smaller number followed})$$

$$XC = 100 - 10 = 90 \quad (\text{smaller number preceded})$$

Other Examples:

$$VIII = 5 + 1 + 1 + 1 = 8$$

$$XLI = (50 - 10) + 1 = 41$$

$$MCMLXXXIV = 1000 + (1000 - 100) + (50 + 10 + 10 + 10) + (5 - 1) = 1984$$

More Rules for Translating:

- For numbers (4000 and above), a bar can be placed above a base numeral, or parentheses placed around it, to indicate multiplication by 1000, (although the Romans themselves often wrote out the M's).

Examples:

$$\overline{V} \text{ or } (V) = \text{five thousand}$$

$$\overline{X} \text{ or } (X) = \text{ten thousand}$$

$$\overline{L} \text{ or } (L) = \text{fifty thousand}$$

$$\overline{C} \text{ or } (C) = \text{one hundred thousand}$$

$$\overline{D} \text{ or } (D) = \text{five hundred thousand}$$

$$\overline{M} \text{ or } (M) = \text{one million}$$

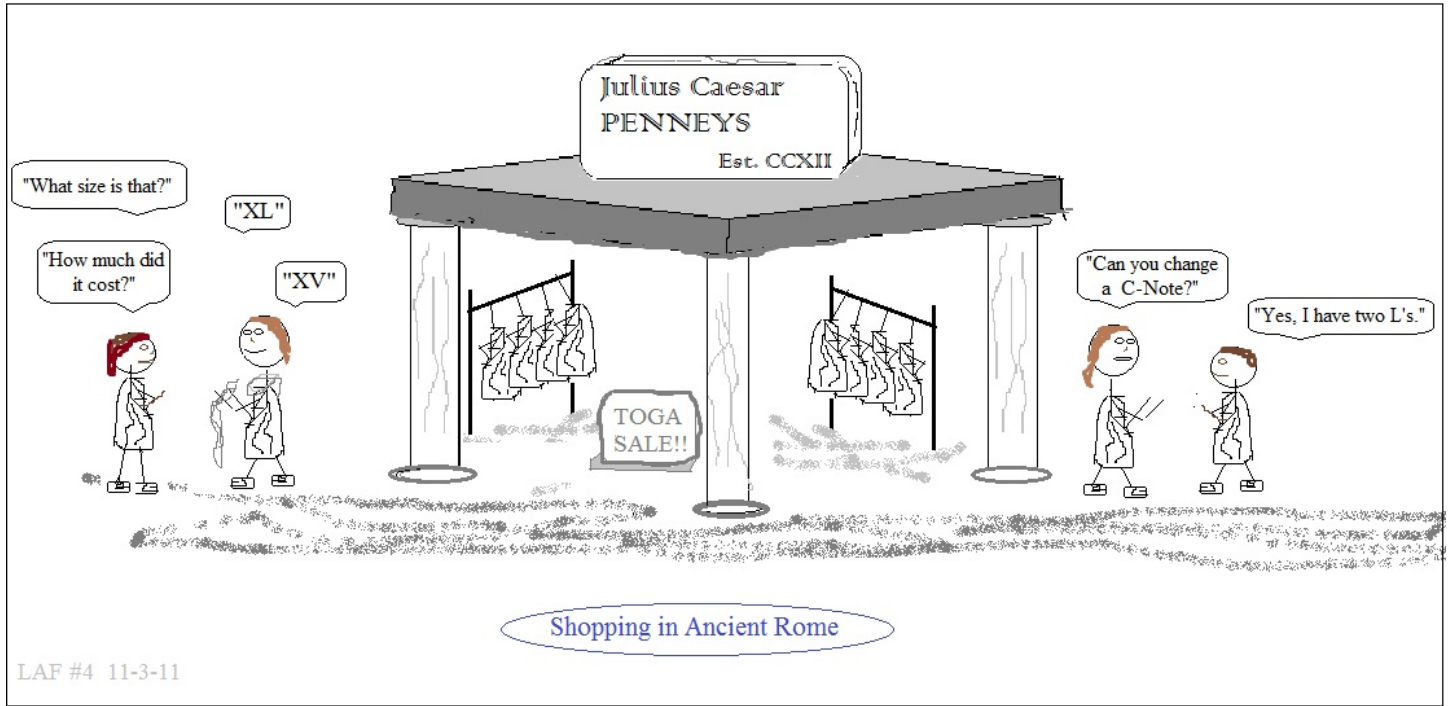
- In the Middle Ages, Latin writers used the horizontal line above to represent one thousand times that numeral. And, additional vertical lines on both sides of the numeral to denote one hundred times the number.

Examples:

$$\overline{\text{I}} = \text{one thousand}$$

$$|\overline{\text{I}}| = \text{one hundred thousand}$$

$$|\overline{\text{V}}| = \text{five hundred thousand}$$



II. Practice Exercises



Roman Numerals



Hidden Message

Clue: "An Early Athlete"

Solve each Roman Numeral problem. Then, using the number key, convert to letters.

Number Key:									
0	1	2	3	4	5	6	7	8	9
A	D	I	L	T	R	O	J	E	G

1) $\frac{XCVIII}{XIV} =$

2) $IV \times IV =$

1 _____

3) $XC - X =$

0 _____

4) $III \times I \times III =$

5) $MD - CL - VI =$

1 44 _____

6) $LX + XL =$

10 _____

7) $MDCCCI - DLXVII =$

234 _____

8) $\frac{MM}{C} =$

0 _____

9) $\frac{(V + M)}{VI} =$

1 00 _____

10) $\overline{X} = 10^{\square}$

11) $M + D + C + L + X + V + I =$

1 66 _____

12) $X + XX + XXX - V =$

5 _____

**HIDDEN MESSAGE
(ROMAN NUMERALS)**

Hint: "Appetizer in Ancient Rome"?

Instructions:
Answer all the Roman Numeral Questions.
Then, change each number into a letter to
reveal the answer.

Number/Letter Key:

1	2	3	4	5	6	7	8	9	0
A	C	D	E	J	L	M	R	S	T

1) XI - IX =

2) (L ÷ V) ÷ X =

3) \overline{V} - M =

4) CV + LIV =

5) If you list the Roman Numerals for 1 through 10, how many 'I's would you have?

6) XC - X =

7) MCMLXVI

8) How many (Roman Numeral) characters/digits are in 377?

9) III + VIII =

10) The number of S's in the instructions box.

11) \overline{M}

12) XLIX + IV =

→ _____

→ _____

000 → _____

15 → _____

4 → _____

0 → _____

1 66 → _____

→ _____

1 → _____

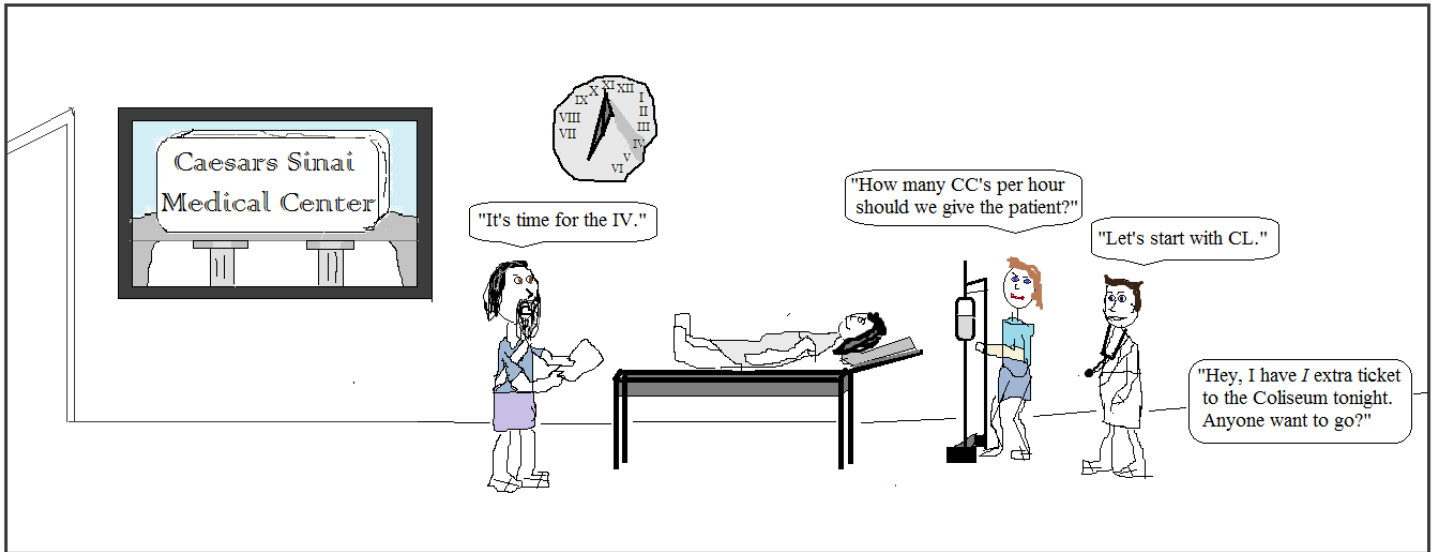
→ _____

000,000 → _____

5 → _____

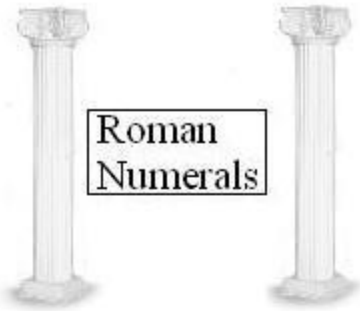
Recovery in Ancient Rome
(The ambiguity of Roman Numerals)

LanceAF #LIV (10-13-12)
www.mathplane.com



Marcus Welbius MD treats Mr. Howell III
(circa CCLXX)

III. Solutions



Roman Numerals

Solve each Roman Numeral problem. Then, using the number key, convert to letters.

Hidden Message

Clue: "An Early Athlete"

Number Key

0	1	2	3	4	5	6	7	8	9
A	D	I	L	T	R	O	J	E	G

1) $\frac{XCVIII}{XIV} = \frac{98}{14} = 7$

2) $IV \times IV = 4 \times 4 = 16$

3) $XC - X = 90 - 10 = 80$

4) $III \times I \times III = 3 \times 1 \times 3 = 9$

5) $MD - CL - VI = 1500 - 150 - 6 = 1344$

6) $LX + XL = 60 + 40 = 100$

7) $MDCCCI - DLXVII = 1801 - 567 = 1234$

8) $\frac{MM}{C} = \frac{2000}{100} = 20$

9) $\frac{(V+M)}{VI} = \frac{(5000+1000)}{6} = 1000$

10) $X = 10^1$ ✓ $10,000 = 10^4$

11) $M + D + C + L + X + V + I = 1000 + 500 + 100 + 50 + 10 + 5 + 1 = 1666$

12) $X + XX + XXX - V = 10 + 20 + 30 - 5 = 55$

 J

1 O

0 E

 G

1 44 L

10 A

234 D

0 I

1 00 A

 T

1 66 O

5 R

HIDDEN MESSAGE (ROMAN NUMERALS)

Hint: "Appetizer in Ancient Rome"?

Instructions:
Answer all the Roman Numeral Questions.
Then, change each number into a letter to
reveal the answer.

Number/Letter Key:

1	2	3	4	5	6	7	8	9	0
A	C	D	E	J	L	M	R	S	T

SOLUTIONS

1) $XI - IX = 11 - 9 = 2$

2) $(L \div V) \div X = (50 \div 5) \div 10 = (10) \div 10 = 1$

3) $\overline{V} - M = 5000 - 1000 = 4000$

4) $CV + LIV = 105 + 54 = 109$

5) If you list the Roman Numerals for 1 through 10, how many 'I's would you have?

I
II
III
IV
V
VI
VII
VIII
IX
X

14 I's

6) $XC - X = 90 - 10 = 80$

7) $MCMLXVI \quad MCM = 1900 \quad LX = 60 \quad VI = 6 \quad 1966$

8) How many (Roman Numeral) characters/digits are in 377?

CCCLXXVII 9 'digits'

9) $III + VIII = 3 + 8 = 11$

10) The number of S's in the instructions box. 6 times (see above)

11) $\overline{M} \quad 1000 \times 1000 = 1,000,000$

12) $XLIX + IV = 49 + 4 = 53$

2 → C

1 → A

4 000 → E

15 9 → S

1 4 → A

8 0 → R

1 9 66 → S

9 → S

1 1 → A

6 → L

1 000,000 → A

5 3 → D

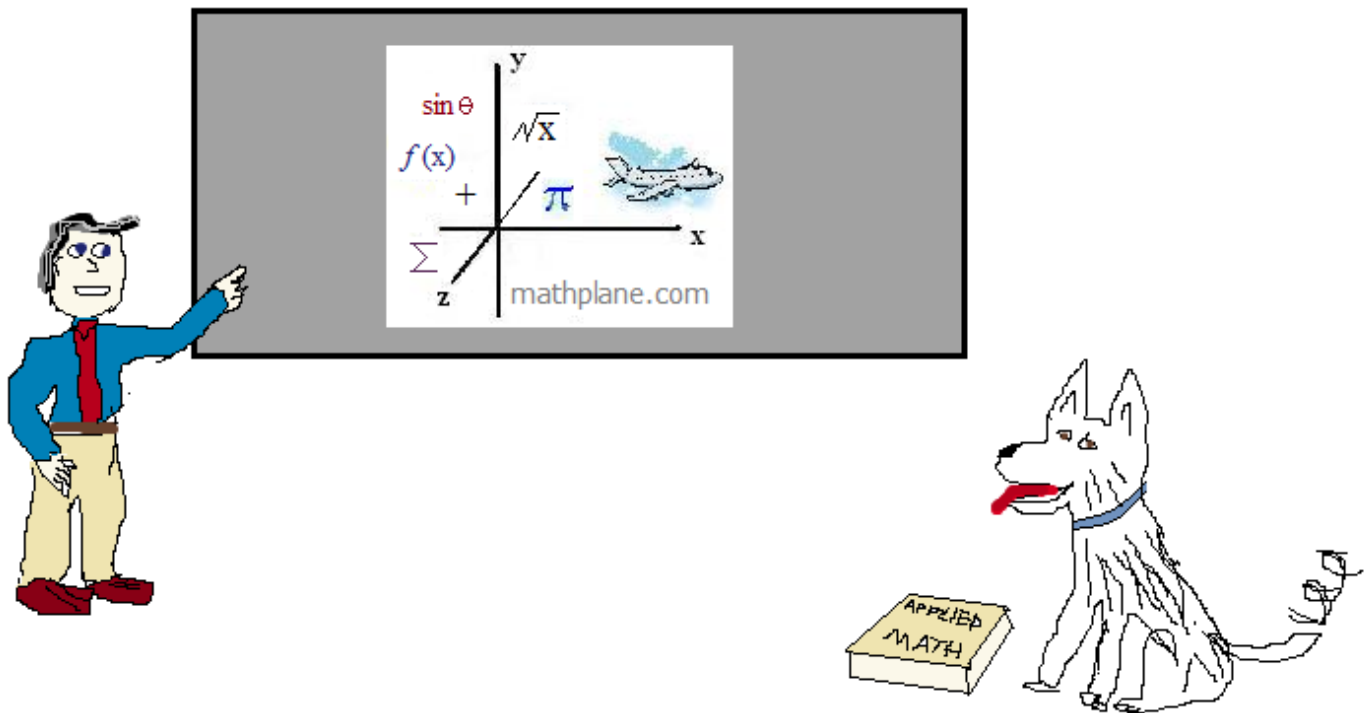
"Appetizer in Ancient Rome?"

Caesar's Salad

Thanks for visiting.

If you have questions, suggestions, or requests, let us know.

Enjoy!



Also, Mathplane *Express* for mobile at mathplane.ORG

Or, visit the mathplane stores at TeachersPayTeachers and TES!