



Gordon Burgin's Puzzles

February 2022 challenge

Roman Arithmetic

Roman Arithmetic is the use of arithmetical operations on Roman Numerals. Roman numerals are a numeral system of ancient Rome based on letters of the alphabet, which are combined to signify the sum or difference of their values. The Romans depicted numbers using seven letters of the alphabet as numerals: I = 1, V = 5, X = 10, L = 50, C = 100, D = 500 & M = 1000. The system does not include a zero and is shown from 1 to 10 as: I, II, III, IV, V, VI, VII, VIII, IX and X. Symbols are written and read from left to right, from highest to lowest values. A letter placed after another of greater value adds (e.g., XVI is 16 and the year 2022 in Roman Numerals is MMXXII) whereas a letter placed before another of greater value subtracts (e.g., XC is 90). With this brief introduction, solve the following expressions and state their results in Roman Numerals.

1. $IV + XCIX = ?$
2. $LXX + CLXX = ?$
3. $LIV - XLIV + CLIV = ?$
4. $MV - CCCXC - DLII = ?$
5. $LXXV + CXIX + DCCXVI = ?$
6. $XI + XXII + XXXIII + XLIV - LV = ?$
7. $DIII + XDXII + CMXXIV + CLXXI = ?$
8. $MDCCLXV - MCXX + DXLIV - CDXCVI = ?$

Time calculation

A watch gains 20 seconds every half hour. It was last set at 3pm, what is the actual time, to the nearest minute, when it reads 3pm on the next day?

Sequencing

What comes next in this mathematical sequence:

1, 6, 21, 66, 201, 606, 1821, ?