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A MISCELLANY OF 1979 CURIOSA

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(A) The digital root of 1979 is 8, which also is the sum of the two absent odd digits, 3 and 5. Otherwise, $F_4 + F_5 = F_6$.

$1 \cdot 9 \cdot 7 \cdot 9 = 567$, three consecutive digits in ascending order.

$1^9 \cdot 7^9 = 40353607$, which contains five consecutive digits.

1979 is a cyclic compression of two palindromes—the composite 979 ($= 11 \cdot 89$) and the prime 919.

(B) $1979_{10} = 118E_{12} = 153X_{11} = 2638_9 = 3673_8 = 5525_7 = 13055_6$
$= 3044_5 = 132323_4 = 2201022_3 = 11110111011_2$.

In base four, the integer is almost smoothly undulating. In base three, the palindromic integer contains the three distinct digits in that base. In base two, the groups of 1's form a decreasing sequence.

(C) $1979 = (11)(11)(11) + [(111 - 1)/(1 + 1) - 1](11 + 1)$
$= 2222 - 222 - 22 + 2/2$
$= (333 - 3)(3!) - 3/3$
$= 4(444 + 44 + 4 + 4) - 4 - 4/4$
$= 5 \cdot 5 \cdot 5 \cdot 5 + 5 \cdot 5 \cdot 5 \cdot 5 + 555 + 5 \cdot 5 \cdot 5 + 55 - 5 - 5/5$
$= 6 \cdot 6 \cdot 6 \cdot 6 + 666 + 6 + 6 + 6 - 6/6$
$= 7 \cdot 7 \cdot 7 \cdot 7 - 7 \cdot 7 \cdot 7 - 77 - 7/7 - 7/7$
$= 888 + 888 + 88 + 88 + 8 + 8 + 8 + 8/8 + 8/8 + 8/8$
$= (9999 - 999)/9 + 999 - 9 - 9 - 9/9 - 9/9$

(D) $1 + 9 + 7 + 9 = 26$
$19 + 97 + 79 + 91 = 286$
$197 + 979 + 791 + 919 = 2886$
$1979 + 9791 + 7919 + 9197 = 28886$

(E) Here are several of the ways that 1979 can be written using conventional mathematical symbols and one 1, nine 9's, seven 7's, and nine 9's.

$1979 = 1(999 + 9997/9997) + 9(99 + 779/779) + 7(9 + 9/9) + 9$
$= 1(999 + 9/9) + 9(99 + 9/9) + 7(9 + 9/9) + 9(99777/99777)$
$= 19(99 + 99999/99999) + 7(\sqrt{9}\sqrt{9} + 7779/7779) + 9$
$= 197(9 + 777/777) + \sqrt{9}\sqrt{9}(9999999/9999999)$
$= 1(999 + 9/9) + \sqrt{9}\sqrt{9}(99 + 7/7) + 7(77/77 + 9) + 9 + 9(999 - 999)$

In the last expression, the digit groups are intact and in the order of occurrence in 1979.

(F) $19 \cdot 79 = 1501$ is one of eleven composite integers between the primes 1499 and 1511. Consequently, it is the corner element of the following third-order magic square composed of composite elements and having a magic constant of $4512 = 2 \cdot 47 \cdot 48 = 2^5 \cdot 3 \cdot 47$.

1501	1506	1505		$19 \cdot 79$	$2 \cdot 3 \cdot 251$	$5 \cdot 7 \cdot 43$
1508	1504	1500	or	$2^2 \cdot 13 \cdot 29$	$2^5 \cdot 47$	$2^2 \cdot 3 \cdot 5^3$
1503	1502	1507		$3^2 \cdot 167$	$2 \cdot 751$	$11 \cdot 137$

(G) $1979 = 1979 + 1 + \sqrt{9} - 7 + \sqrt{9}$
$= 1979(-1\sqrt{9} + 7 - \sqrt{9})$

(continued)

$= 197 \cdot 9 + 197 + 9$
$= 19 \cdot 79 + 1 \cdot 9 \cdot 7 \cdot 9 - 1 - 9 - 79$
$= 1 \cdot 979 + 1 + 97 \cdot 9 - 1 + 97 + 9 + 19 - 7 + 9$

(*H*) $1979 = 2 \cdot 3 - 4 + 5 - 6 + 1978$
$= 3(729) - 4(58 - 6)(1)$
$= 59 + 31 \cdot 62 - (8 - 7)\sqrt{4}$
$= 28 + 5(396) - 4 \cdot 7 - 1$
$= 1 \cdot 4 \cdot 5 + 6(329) - 7 - 8$

$1979 = 1 - 58 + 7! - 94 - 3026$
$= 403(2 + 8 - 9) + 1576$
$= 10 - 4 - 5 + 6 + 7 \cdot 283 - 9$
$= 9 \cdot 201 + 5[38 - 4(7 - 6)]$
$= 1098 + 2 \cdot 473 - 65$

(*I*) $1979 = 43 + 44^2 = 45^2 - 46$

$1979 = F_5 + F_{14} + F_{17} = L_6 + L_9 + L_{13} + L_{15}$

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101 FACES OF 1979

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$0 = 1 + 9 - 7 - \sqrt{9}$
$1 = 1(\sqrt{9}) + 7 - 9$
$2 = 1 - \sqrt{9} + 7 - \sqrt{9}$
$3 = -1 + \sqrt{9} + 7 - (\sqrt{9})!$
$4 = (1 - 9)/(7 - 9)$
$5 = 1 \cdot 9 - 7 + \sqrt{9}$
$6 = -1 + \sqrt{9} + 7 - \sqrt{9}$
$7 = 1 \cdot 9 + 7 - 9$
$8 = 1 + 9 + 7 - 9$
$9 = (-1 + 9 - 7)9$
$10 = -1 \cdot \sqrt{9} + 7 + (\sqrt{9})!$
$11 = 1 \cdot 9 - 7 + 9$
$12 = 1 + 9 - 7 + 9$
$13 = 1 \cdot \sqrt{9} + 7 + \sqrt{9}$
$14 = 1 + 9 + 7 - \sqrt{9}$
$15 = 19 - 7 + \sqrt{9}$
$16 = 1 \cdot \sqrt{9} + 7 + (\sqrt{9})!$
$17 = 1 + \sqrt{9} + 7 + (\sqrt{9})!$
$18 = -1 + 9 + 7 + \sqrt{9}$
$19 = 1 \cdot \sqrt{9} + 7 + 9$
$20 = 1 + 9 + 7 + \sqrt{9}$
$21 = 19 - 7 + 9$
$22 = (1 + \sqrt{9} + 7)(!\sqrt{9})$
$23 = 19 + 7 - \sqrt{9}$
$24 = -1 + 9 + 7 + 9$
$25 = 1 \cdot 9 + 7 + 9$
$26 = 1 + 9 + 7 + 9$
$27 = 1 \cdot \sqrt{9} \cdot 7 + (\sqrt{9})!$
$28 = 1 + \sqrt{9} \cdot 7 + (\sqrt{9})!$
$29 = -1 + \sqrt{9} \cdot 7 + 9$
$30 = 1 \cdot \sqrt{9} \cdot 7 + 9$
$31 = 1 + \sqrt{9} \cdot 7 + 9$
$32 = -1 - 9 + 7(\sqrt{9})!$
$33 = -1 \cdot 9 + 7(\sqrt{9})!$
$34 = 1 - 9 + 7(\sqrt{9})!$
$35 = 19 + 7 + 9$
$36 = -1(\sqrt{9})! + 7(\sqrt{9})!$
$37 = (1 + \sqrt{9})7 + 9$
$38 = 19(-7 + 9)$
$39 = -1 \cdot \sqrt{9} + 7(\sqrt{9})!$
$40 = 1 - \sqrt{9} + 7(\sqrt{9})!$
$41 = -1^9 + 7(\sqrt{9})!$
$42 = 1^9 \cdot 7(\sqrt{9})!$
$43 = 1^9 + 7(\sqrt{9})!$
$44 = -1 + \sqrt{9} + 7(\sqrt{9})!$
$45 = 1 \cdot \sqrt{9} + 7(\sqrt{9})!$
$46 = 1 + \sqrt{9} + 7(\sqrt{9})!$
$47 = -1 + (\sqrt{9})! + 7(\sqrt{9})!$
$48 = 1 \cdot (\sqrt{9})! + 7(\sqrt{9})!$
$49 = 1 + (\sqrt{9})! + 7(\sqrt{9})!$
$50 = -1 + 9 + 7(\sqrt{9})!$
$51 = 1 \cdot 9 + 7(\sqrt{9})!$
$52 = 1 + 9 + 7(\sqrt{9})!$
$53 = -1 - 9 + 7 \cdot 9$
$54 = (-1 + 9)7 - !\sqrt{9}$
$55 = (-1 + 9)7 - !(!\sqrt{9})$
$56 = -1 + 9 \cdot 7 - (\sqrt{9})!$
$57 = 1 \cdot 9 \cdot 7 - (\sqrt{9})!$
$58 = 1 + 9 \cdot 7 - (\sqrt{9})!$
$59 = -1 - \sqrt{9} + 7 \cdot 9$
$60 = -19 + 79$
$61 = 1 - \sqrt{9} + 7 \cdot 9$
$62 = 1 + 9 \cdot 7 - !\sqrt{9}$
$63 = -1 + 9 \cdot 7 + !(!\sqrt{9})$
$64 = -1 + 9 \cdot 7 + !\sqrt{9}$
$65 = (-1 + 9)7 + 9$
$66 = 1 \cdot 9 \cdot 7 + \sqrt{9}$
$67 = 1 + \sqrt{9} + 7 \cdot 9$
$68 = -1 + 9 \cdot 7 + (\sqrt{9})!$
$69 = -1 - 9 + 79$
$70 = -1 \cdot 9 + 79$
$71 = -1 + 9 + 7 \cdot 9$
$72 = -1 - (\sqrt{9})! + 79$
$73 = 1 + 9 + 7 \cdot 9$
$74 = 1 - (\sqrt{9})! + 79$
$75 = -1 - \sqrt{9} + 79$
$76 = -1 \cdot \sqrt{9} + 79$
$77 = 1 - \sqrt{9} + 79$
$78 = 1 - !\sqrt{9} + 79$
$79 = 1^9 \cdot 79$
$80 = -1 + !\sqrt{9} + 79$
$81 = -1 + \sqrt{9} + 79$
$82 = 1 \cdot \sqrt{9} + 79$
$83 = 1 + \sqrt{9} + 79$
$84 = -1 + (\sqrt{9})! + 79$
$85 = 1 \cdot (\sqrt{9})! + 79$
$86 = 1 + (\sqrt{9})! + 79$
$87 = -1 + 9 + 79$
$88 = 1 \cdot 9 + 79$
$89 = 1 + 9 + 79$
$90 = -1 + 97 - (\sqrt{9})!$
$91 = 1 \cdot 97 - (\sqrt{9})!$
$92 = 1 + 97 - (\sqrt{9})!$
$93 = -1 + 97 - \sqrt{9}$
$94 = 1 \cdot 97 - \sqrt{9}$
$95 = 1 + 97 - \sqrt{9}$
$96 = 1 + 97 - !\sqrt{9}$
$97 = 1 \cdot 97[!(!\sqrt{9})]$
$98 = 19 + 79$
$99 = -1 + 97 + \sqrt{9}$
$100 = 1 \cdot 97 + \sqrt{9}$

In each of these expressions, 1, 9, 7, and 9 appear in the same order as they do in the year. The symbol $!x$ represents "sub-factorial x." Thus, $!3 = 2$ and $!2 = 1$.

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