Number Oddities

The following numbers can be elegantly expressed as symmetrical equations using only the digits of the numbers :

$369 = (3X69)+(36X9)-(3X6X9)$ $688 = (6X88)+(68X8)-(6X8X8)$ $639 = (6X39)+(63X9)-(6X3X9)$

The following simple equations using three two-digit numbers remain still valid when multiplication signs are introduced between the digits of the numbers. Thus, $19+37=56$ $18+39=57$ $29+38=67$)

and $(1X9)+(3X7)=(5X6)$ $(1X8)+(3X9)=(5X7)$ $(2X9)+(3X8)=(6X7)$

The simple equation $13^2=169$ is still valid when plus signs are introduced between the digits of 13 and 169, $(1+3)^2=1+6+9$ Here is a curious coincidence, $2^5X9^2=2592$

The square number 1089 can be expressed as the difference between the squares of two reversible numbers, $1089=65^2-56^2$

Interestingly, it can also be expressed as the difference between two squares in two more ways, $1089=55^2-44^2$ $1089=183^2-190^2$

The numbers 49 and 1680 are unique in that the addition of 1 to them as well to their halves renders them perfect squares. Thus, $48+1=49$ $48/2+1=25$ $1680+1=1681=41^2$ $1680/2+1=841=29^2$

37 is the only two digit number which can be expressed as the difference between the sum of the squares of its digits and the product of its digits, $37=(3^2+7^2)-3X7$

The palindromes below can be expressed as the difference between the squares of two reversible numbers, $2772=96^2-68^2$ $5445=83^2-38^2$ $6336=80^2-08^2$

Below is an interesting oddity involving the square palindrome 69696. This palindrome can be expressed as the prodnct of two palindromes, namely, $69696=6336X11$

The palindrome 6336 is interesting in that it can be represented by a palindromic expression, $6336=8X(63+36)X8$

The square palindromes 121, 12321, 1234321, etc., are interesting. When plus signs are introduced between the digits of these numbers they still remain square, though no longer palindromic. Thus, $1+2+1=4$ $1+2+3+2+1=9$ $1+2+3+4+3+2+1=16$.