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The Sequential Even and Odd Number Identification in Decimal Numbers by Formula

Keerthivasan Chandrasekaran

Definitions

1) Esn = Sequential Even numbers.
Esn = 2, 4, 6, ……Osn

2) Nsn – Whole Number
Nsn = 0, 1, 2, 3, 4, ……

3) Osn = Sequential Odd Numbers
Osn = 1, 3, 5, 7, …..Esn

4) sn = nth Position of the Whole number or the Even number or the odd number.
Sn refers position.
If, Sn = 1, Nsn = 0, Esn = 1, Osn = 2
If, Sn = 2, Nsn = 1, Esn = 3, Osn = 4
If, sn = 3, Nsn = 3, Esn = 5, Osn = 6

Explanation:
In the whole number, we start from 0 to infinite.

By using the formula, we can find the sequential even number and odd number in the decimal number system.

Starting form first even number to nth even number are known as Esn and starting from first odd number to nth odd number are know as Osn.

All these even and odd numbers are within Whole number starting from 0.
If sn = 1,
Esn = 1
Osn = 2
If sn = 2 (sn+1)
Esn = 3
Osn = 4
If sn = 3 (sn+2)
Esn = 5
Osn = 6

Formulae:

To find the odd number in the sequence of whole number:
If both base sn for Even and odd numbers are same.
1) Esn = Osn +1

To find the Even number in the sequence of whole number:
If both base sn for Even and odd numbers are same.
1) Nsn + Nsn+1 = Osn

Proof:
1) Formula 1: (Esn = Osn +1)
For example:
If sn = 1,
Osn = 1
Esn = 2
If sn = 2 (sn+1)
Osn = 3
Esn = 4
If sn = 3 (sn+2)
Osn = 5
Esn = 6

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1) sn = 1
Formula: Esn = Osn+1
LHS: If sn = 1,
Esn = 2
RHS: Esn = Osn+1
Osn = 1+1 = 2
Esn = 2
LHS = RHS.

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2) sn = 2
Formula: Esn = Osn+1
LHS: If sn = 2,
E2 = 4

RHS:Esn = Osn+1
If sn = 2, Osn = 3
Esn = 3+1 = 4
Esn = 4
LHS = RHS

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3) sn = 3
Formula: Esn = Osn+1
LHS: If sn = 3,
E2 = 6

RHS: Esn = Osn+1
If sn = 3, Osn = 5
Esn = 5+1 = 6
Esn = 6
LHS = RHS

2) Formula 2 (Nsn + N (sn+1) = O (sn)
For example:
If sn = 1,
Osn = 1
Esn = 2
Nsn = 1
If sn = 2 (sn+1)
Osn = 3
Esn = 4
Osn = 2
If sn = 3 (sn+2)
Osn = 5
Esn = 6
Nsn = 3

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1) sn = 1
Nsn+N (sn-1) = Osn

LHS: If sn = 1,
Osn = 1
RHS:
If sn = 1,
Nsn = N1 = 0
N (sn+1) = N2 = 1
Formula: Nsn+N (sn+1) = Osn
0+1 = 1
Osn = 1
LHS = RHS

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2) sn = 2
Nsn+ N (sn-1) = Osn

LHS: If sn = 2,
Osn = 3
RHS:
If sn = 2,
Nsn = N1 = 1
N (sn+1) = N2 = 2
Formula: Nsn+N (sn+1) = Osn
1+2 = 3
Osn = 3
LHS = RHS

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1) sn = 3
Nsn+N (sn-1) = Osn

LHS: If sn = 3,
Osn = 5
RHS:
If sn = 3,
Nsn = N1 = 2
N (sn+1) = 3
Formula: Nsn+N (sn+1) = Osn
2+3 = 5
Osn = 5
LHS = RHS

Background and Rough proof:

0, 1, 2, 3, 4, 5……..N
0+1 = 1 (Even Number or Esn) (Nsn + Nsn+1 = Osn)
1+1 = 2 (Odd Number of Osn) (Esn = Osn +1)
2+1 = 3 (Even Number or Esn) (Nsn + Nsn+1 = Osn)
3+1 = 4 (Odd Number of Osn) (Esn = Osn +1)
2+3 = 5 (Even Number or Esn) (Nsn + Nsn+1 = Osn), etc.,