DECIMALS

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1. Q) What is a DECIMAL ?

A) A Decimal is a number expressed using the Decimal Number System. The term is commonly used for numbers that have Fractional Parts indicated by a Decimal Point. A number Less than One(1) is called a Decimal Fraction. A Mixed Decimal is a Number consisting of an integer and a Decimal Fraction.

2. Q) What is the Decimal Fraction ?

A) A Decimal Fraction is a Series of Fractions; It is a number of Tenths plus a number of Hundredths plus a number of Thousandths, and so on.

3. A Finite or Terminating Decimal has a Fixed number of Digits. Decimals whose Digits continue indefinitely represent an Infinite Series and are called Infinite or Non-Terminating Decimals.

4. If the number is a Rational Number it may have an Infinitely Repeating Digit or Group of Digits. Decimals of this type are said to be Repeating or Recurring Decimals. Thus One-Third, 1/3rd, is the Decimal 0.333 333 333…, which is written as $0.\overline{3}$;

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5. This Horizontal Line above the Digit 3 in $0.\overline{3}$ is called the VINCULUM. A Vinculum is a Horizontal Line placed Over, Under, or sometimes Through Mathematical Symbols, Letters, or Expressions to indicate Repetition, or that they are GROUPED together or have a Special Meaning.

Viniculums are used for; Repeating Decimals, Line Segments in Geometry, Complex Conjugates & In a Fraction, the Fraction Bar itself is a type of Vinculum.

The word comes from the Latin *vinculum*, meaning "bond," "chain," or "tie."

6. Deci means Ten. DECI = TEN.

7. Our Number System is called the DECIMAL NUMBER System because it uses TEN Symbols called DIGITS.

8. A Digit is Defined as a FINGER or a TOE; a Fingers Greadth; any of the Numbers from 0 to 9 ; (Astron, in measuring an Eclipse) the Twelfth (12th) Part of the Diameter of the Sun or Moon [from Latin, Digitus, Finger].

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9. Q) How Do We Name a Decimal Number?

A) To name a Decimal Number Less than 1, Read the Digits to the Right of the Decimal Point as if they form a Whole Number, then Say the Name of the Place Value of the Last Digit.

Examples

- **0.4 is read as four tenths.**
- **0.27 is read as twenty-seven hundredths.**
- **0.583 is read as five hundred eighty-three thousandths.**

Note

This rule specifically applies to decimals less than 1. For Decimals Greater Than or Equal to 1, First Read the Whole-Number Part, Say: "and" for the Decimal Point, then Read the Decimal Portion in the Same Way.

For example:

- **3.14 is read as three and fourteen hundredths.**

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10. The names of decimal places follow the same pattern as whole-number place values, but each ends with "-th" (or "-ths" when plural).

Common Decimal Place Values

Decimal Place	Name
0.1	Tenths
0.01	Hundredths
0.001	Thousandths
0.0001	Ten-Thousandths
0.00001	Hundred-Thousandths
0.000001	Millionths
0.0000001	Ten-Millionths
0.00000001	Hundred-Millionths
0.000000001	Billionths
0.0000000001	Ten-Billionths
0.00000000001	Hundred-Billionths
0.000000000001	Trillionths
0.0000000000001	Ten-Trillionths
0.00000000000001	Hundred-Trillionths
0.000000000000001	Quadrillionths

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General Pattern

Each new place to the right is one-tenth the value of the place immediately to its left.

- **Tenths**
- **Hundredths**
- **Thousandths**
- **Ten-Thousandths**
- **Hundred-Thousandths**
- **Millionths**
- **Ten-Millionths**
- **Hundred-Millionths**
- **Billionths**
- **Ten-Billionths**
- **Hundred-Billionths**
- **Trillionths**
- **and so on.**

Simple Rule

Take the corresponding whole-number place value and add "-th".

For example:

- **Million → Millionth**
- **Billion → Billionth**
- **Trillion → Trillionth**
- **Quadrillion → Quadrillionth**

This pattern continues indefinitely.