Decimal Number Forms

Decimal Notation:

Decimal notation is similar to standard notation; however, a decimal separates whole number place values from decimal place values.

200

Standard Notation

200.000

Decimal Notation

Word Name:

The naming conventions used to name whole numbers are similar to those used to name numbers containing decimals.

921.4711

Word Name:
nine hundred twenty-one and four thousand seven hundred eleven ten-thousandths

1. The whole number portion is named normally.

nine hundred twenty-one

2. The word "and" is used to indicate the decimal point.

and

3. The decimal portion is named using whole number naming conventions without commas. Additionally, the name of the farthest right decimal place value is used at the end of the word name.

four thousand seven hundred eleven ten-thousandths

Decimal Number Forms

Decimal Expanded Notation:

There are three forms of decimal expanded notation: place value name expanded notation, decimal number expanded notation, and fractional expanded notation.

4.186

Decimal Notation

Place Value Name Expanded Notation:

In place value name expanded notation, digits are followed by the name of the place value they occupy. Digits and their place value names are separated by plus signs "+".

4 ones + 1 tenth + 8 hundredths + 6 thousandths

Place Value Name Expanded Notation

Decimal Number Expanded Notation:

In decimal number expanded notation, the place value position of the digits are indicated by zeros. For whole number place value digits, trailing zeros are used to indicate positioning. For decimal place value digits, leading zeros are used to indicate positioning. In decimal number expanded notation, numbers are separated by plus signs "+".

4 + 0.1 + 0.08 + 0.006

Decimal Number Expanded Notation

Decimal Number Forms

Fractional Expanded Notation:

In fractional expanded notation, fractions are used to indicate the position of digits occupying decimal place values. These fractions are equivalent to their decimal counterpart. The whole number portion abides by number expanded notation rules. In fractional expanded notation, numbers are separated by plus signs "+".

$$4 + \frac{1}{10} + \frac{8}{100} + \frac{6}{1{,}000}$$

Fractional Expanded Notation

Reduced Decimal Expanded Notation:

Similar to the expanded notations of whole numbers, decimal expanded notations should be reduced. To reduce decimal expanded notations, remove any place values occupied by zeros.

10.505

Decimal Notation

1 ten + 0 ones + 5 tenths + 0 hundreths + 5 thousandths

Place Value Name Expanded Notation

10 + 0 + 0.5 + 0.00 + 0.005

Number Decimal Expanded Notation

$$10 + 0 + \frac{5}{10} + \frac{0}{100} + \frac{5}{1{,}000}$$

Fractional Expanded Notation