

Introduction to Decimals

The number 31.88 is in **Decimal Notation**. (more commonly referred to as **Decimals**)

A number written in **Decimal Notation** has three parts.

Whole Number	Decimal	Decimal
31	.	88
Part	Point	Part

Note:

- (a) The Decimal part of a number represents a number less than one.
- (b) The portion of a digit in a decimal determines the digit's place value.

4	Hundred
5	Tens
8	Ones
.	Decimal
3	Tenths
0	Hundredths
2	Thousandths
7	Tenths Thousandths
1	Hundredths Thousandths
9	Millionths

Note the relationship between **fractions** and numbers written in **Decimal Notation**.

Seven Tenths	Seven Hundredths	Seven Thousandths
$7/10 = 0.7$	$7/100 = 0.07$	$7/1000 = 0.007$
1 zero in 10	2 zeros in 100	3 zeros in 1000
1 decimal place in .7	2 decimal place in .07	3 decimal place in .007

To write decimals in words, write the decimal part of the number as if it were a whole number. Then name the place value of the last digit.

Example. 0.9684 Nine thousand six hundred eighty four **Ten thousandths.**

0	Ones
.	Decimal
9	Tenths
6	Hundredths
8	Thousandths
4	Tenths Thousandths

Try These:

- (a) **Four and twenty-three hundredths.** $\underline{\quad} . \underline{\quad} \underline{\quad}$
 (b) **91.008**

Solutions:

- (a) **4.23**
 (b) **Ninety one and eight Thousandths**

Order Relation between Decimals

A whole number can be written as a decimal by writing a decimal point to the right of the last digit.

Example

- (a) $62 = 62.$ (b) $497 = 497.$

Sixty-two dollars can be written as:
 $\$ 62 = \$ 62.00 = \$ 62.0000$ etc.

Any number of zeros can be written to the right without changing the value of the number.

- (a) $.8 = .80 = .800 = .8000$ (b) $1.35 = 1.350 = 1.3500000$

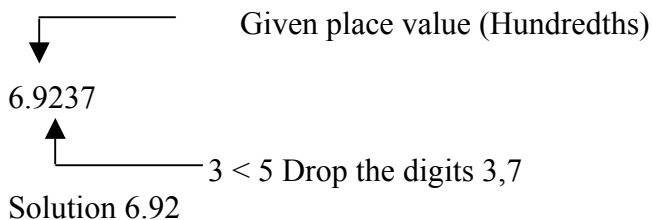
Rounding

In general, rounding Decimals is similar to rounding whole numbers except that the digit to the right of the given place value are dropped instead of being replaced by zeros.

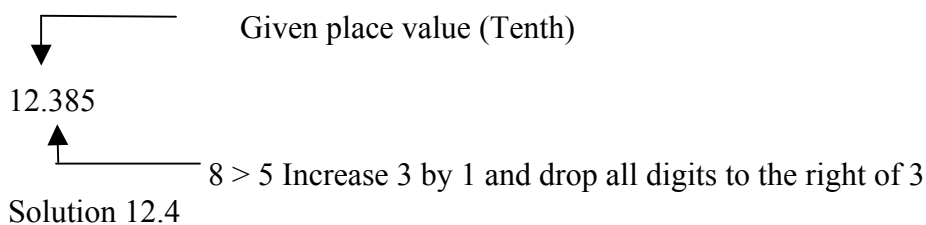
Example:

If the Digit to the right of the given place value is less than 5, that digit and all following digits are dropped:

- (a) Round 6.9237 to the nearest hundredth.



- (b) Round 12.385 to the nearest tenth.



- (c) Round 0.46972 to the nearest thousandths.

