Chapter 4 Section 1
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 digits 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 in100	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 **<u>Ten thousandths.</u>**

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

Try These:

(a)   **Four and twenty-three hundredths.**   ___ . ___ ___
(b)   **91.008**

Solutions:

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

<u>Order Relation between Decimals</u>

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) $1.35 = 1.350 = 1.3500000$
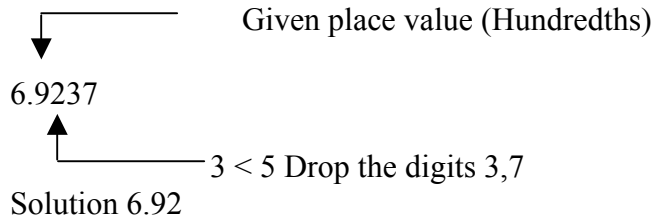

<u>Rounding</u>

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.
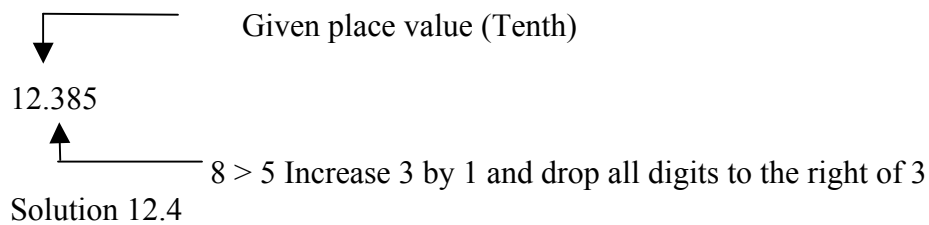
Example:

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.

Given place value (Hundredths)

6.9237

3 < 5 Drop the digits 3,7

Solution 6.92

(b)   Round 12.385 to the nearest tenth.

Given place value (Tenth)

12.385

8 > 5 Increase 3 by 1 and drop all digits to the right of 3

Solution 12.4

(c)   Round 0.46972 to the nearest thousandths.

Given place value (thousandths)

0.46972

7 > 5 Round up by adding 1 to the 9. (9 + 1 = 10)
Carry the 1 to the hundredths place. (6 + 1 = 7)

Solution: 0.47