

Chapter 1 : Decimal numbers (book p.12)

I. Decimal notation

Take a look here: <http://www.math.com/school/subject1/lessons/S1U1L1GL.html>
 here: <http://www.math.com/school/subject1/lessons/S1U1L2GL.html>
 and here: <http://www.mathsisfun.com/decimals.html>

Billions part			Millions part			Thousands part			Units part			Fractional part		
Hundred billions	Ten billions	billions	Hundred millions	Ten millions	millions	Hundred thousands	Ten thousands	thousands	hundreds	tens	ones	tenths	hundredths	thousandths
									1	0	2,	8	5	6
	7	4	5	1	4	8	0	2	0	2	6,	0	4	5

Remember: The comma is always placed at the end of the unities column (note that in English, the comma is replaced by a period, called “decimal point”, and the number 102,856 will be written 102.856. Be very careful, in English lessons about decimal numbers, you will find a comma that separates the billions part, the millions part and the thousands part: it is not written in European notations, and is replaced by a blank or sometimes a period (this is very confusing, I know!!!).

Example for the number: *seventy-four billion, five hundred and fourteen million, eight hundred and two thousand, twenty-six and forty-five thousandths.*

English notation: 74,514,802,026.045
 European notation: 74.514.802.026,045

The part of the number that precedes the comma (on the left) is called integral part, and the part that follows the comma (on the right) is the fractional part (called “decimal part” in French).

Example: 102 , 856
 ↙ ↘
 Integral* part fractional part
In some books, the integral part is called “integer part”.

Property 1: You can take off zeros if they are before the integral part or after the fractional part.
 (You can also add some).

We call them “useless zeros” (“trailing zeros” in some English books).
Examples: 0065,4 = 65,4
 758,59000 = 758,59
 04098,05400 = 4098,054

Definition 1: If a number has no fractional part (or if his fractional part is null) it is called a whole number.

Example: 478,000 = 478 is a whole number.

Property 2 : spelling rules in French.
 The number « mille » (thousand) is never written with an « s »
 The numbers « vingt » (twenty) and « cent » (hundred) :
 - are never written with an « s » if they are followed by another number.
 - have an « s » in the plural and none in the singular if they are the last number of the expression.

II. Fractional notation of a decimal number.

Be careful not to mix up the “fractional part” of a decimal number and a fractional notation, which actually contains fractions.

$$\frac{\dots}{10} : \text{tenths}$$

$$\frac{\dots}{100} : \text{hundredths}$$

$$\frac{\dots}{1000} : \text{thousandths}$$

Property 3 : Any decimal number can be written as a decimal fraction.

Examples :

$$6,275 = 6 + \frac{2}{10} + \frac{7}{100} + \frac{5}{1000} \quad (\text{notation as a sum of decimal fractions}).$$

$$6,275 = \frac{6275}{1000} \quad (\text{notation as one decimal fraction}).$$

III. Multiplying, dividing by 10, 100, 1000.

Property 4 : To multiply a decimal number by 10, 100, 1000,
shift the comma by 1, 2, 3,
rows on the right.

$$\text{Example : } 45,785 \times 100 = 4578,5$$

Property 5 : To divide a decimal number by 10, 100, 1000,
shift the comma by 1, 2, 3,
rows on the left.

$$\text{Example : } 45,785 \div 100 = 0,45785 \quad (\text{you can add « useless zeros » if you need them}).$$