

**EXPLANATIONS OF THE  
PRINCIPLES OF  
ARITHMETIC, ON A NEW  
PLAN**

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Explanations of the Principles of Arithmetic, On a New Plan by Cornell Morey

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EXPLANATIONS

OF

THE PRINCIPLES OF ARITHMETIC,

OR

A NEW PLAN.

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in the Clerk's Office of the District Court of the Northern District  
of New-York.

THE following pages have been prepared amid the labors of the school-room, and with a view to lessen those labors on the part of the teacher, as well as to aid the pupil in obtaining a thorough and practical knowledge of the principles of ARITHMETIC.

That something of the kind is much needed, to accomplish these ends, every dutiful teacher at once admits.

That no improvement can be made upon this production, the author does not claim : but should the system of teaching which it anticipates be approved, the author will soon present to the public, a work upon this branch of Mathematics, which by itself will serve as a text-book, and which perhaps will be more acceptable than the present volume.

The author wishes not to *force* upon the public an additional work upon this subject, but he only asks for a careful examination of this production, and of the system of teaching the science which it proposes, leaving its introduction into use to the discretion of teachers.

An expression of the conclusion arrived at by those who do thus investigate, will be kindly received by C. MORRY, at Macedon Centre, Wayne Co., N. Y.

August 1, 1850.





# ARITHMETIC.

ARITHMETIC comprises both a science and an art. A science, so far as it involves the relations and properties of numbers, as they exist in nature, and an art, so far as these relations and properties are exhibited and applied by means of characters.

## NOTATION AND NUMERATION.

*Notation* consists in writing numbers by figures.

*Numeration* consists in reading the values of figures when written.

To represent the species of every thing, I write that character, (0) called *naught*.  
To represent that I have one unit of any kind, I write that character, (1) called *one*.  
.....two units.....(2).....two  
.....three.....(3).....three  
.....four.....(4).....four  
.....five.....(5).....five  
.....six.....(6).....six  
.....seven.....(7).....seven  
.....eight.....(8).....eight  
.....nine.....(9).....nine

Now if I represent every different number by a different character; as we have an *infinite number* of numbers, I should necessarily have an *infinite number* of characters. Hence it becomes necessary to combine these characters so that they may be made to represent every different number.

Therefore if I wish to represent that I have ten units of any kind, I will do it by writing the 1 one place towards the left, and filling the place it formerly occupied with a naught: thus the value of ten is given to 1 written in the second place from the right

Ten	1	0	10
Ten and one are eleven	1	1	11
Ten and two are twelve	1	2	12
Ten and three are thirteen	1	3	13
Ten and five are fifteen	1	5	15
Ten and nine are nineteen	1	9	19

As twenty is composed of two tens I will represent it by writing 2 in ten's place	-	-	20
Twenty and two are twenty-two	"	"	22
Twenty and five are twenty-five	"	"	25
Twenty and nine are twenty-nine	"	"	29
As thirty is composed of three tens, I will represent it by writing 3 in ten's place	-	-	30
To represent ninety, write 9 in ten's place	-	-	90
Ninety and nine are ninety-nine	"	"	99
As one hundred is composed of ten tens, I will represent it by writing 1 one place farther towards the left, or in the third place from the right	-	-	100

We may observe that in accordance with the system now introduced, by removing a figure one place towards the left, it is made to represent a value ten times as great.

The next figure at the right is called <i>Units</i>	U
The next is ten times units, called <i>Tens</i>	T
The next is ten times tens, called <i>Hundreds</i>	H
The next is ten times hundreds, called <i>Thousands</i>	Th
The next is ten times thousands, called <i>Tens of Thousands</i>	Tk
The next is ten times tens of thousands, called <i>Hundreds of Thousands</i>	Hk
The next is ten times hundreds of thousands, called <i>Millions</i>	M
The next is ten times millions, called <i>Tens of Millions</i>	Tm
The next is ten times tens of millions, called <i>Hundreds of Millions</i>	Hm
The next is ten times hundreds of millions, called <i>Billions</i>	B
The next is ten times billions, called <i>Tens of Billions</i>	Tb
The next is ten times tens of billions, called <i>Hundreds of Billions</i>	Hb
The next is ten times hundreds of billions, called <i>Trillions</i>	Tr
The next is ten times trillions, or <i>Tens of Trillions</i>	Ttr
&c., &c., &c.	

Now as we do not read farther than Hundreds, in any

denomination, and as to represent Hundreds requires three figures, numbers become divided into periods of three figures each.

The first period at the right is called Units, from the Latin word *unus*, meaning one.

The second and third periods have no appropriate names.

The fourth period is called Billions. The prefix *Bi.* means two, and the number of the period may be found by adding two to the meaning of the prefix of the name.

The fifth period is called Trillions. The prefix *Tri.* means three. The number of *this* period may be found by adding two to the meaning of the prefix of the name.

The sixth period is called Quadrillions. The prefix *Quad.* means four. The number of *this* period may be found by adding two to the meaning of the prefix of the name.

And in general, for all periods at the left of the third, having the name given to find the number, add 2 to the meaning of the prefix of the name. And having the number of the period given, to find the name, take 2 from the number of the period, and we have the meaning of the prefix of the name.

3ds	6th	7th	8th	9th	12th	3d	6th	9th
Sept.	Sex.	Quin.	Quad.	Tril.	Bi.	Mill.	Thou.	Units.
222	222	222	222	222	222	222	222	222

Suppose that I am required to arrange in accordance with this system these numbers,

Quadrillions	40	} In this example the prefix Sex. has the greatest value; hence the Sextillion's period will be at the left hand. And Sex. meaning six, the period will be the eighth.
Sextillions	- 364	
Thousands	- .23	
Billions	- - 489	
Units	- 376	

The next prefix in value is Quad., which meaning four, the number of the period will be six, and as each period must occupy three places, I must write a naught at the left of the 40 to fill the vacant place. There being no Quintillions given, the seventh period must be filled with naughts.

There being no Trillions given, the *fifth* period must also be filled with naughts.