Logistices speciosae: the four forms of the operation are shown by example.

Examples of addition.

	a		aa		aaa
To be added	....	To be added	....	To be added	....
	b		bc		bcc
Sum	a + b	Sum	aa + bc		aaa + bcc

		a + b			a + b
To be added	....	....	To be added	....	....
		c + d			c - d
Sum		a + b + c + d	Sum		a + b + c - d
		a + b			a + b
To be added	....	....	To be added	....	....
		- d			- b
Sum		a + b - d	Sum		a
		a + b			aa + cc
To be added	....	....	To be added	....	....
		c + b			aa + cc
Sum		a +c + 2.b	Sum		2.aa + 2.cc
		aaa +cdf - ddd			b + 7.a
To be added	....	....	To be added	....	....
		aaa + bdd + ddd			+ 9.a
Sum		2.aaa + cdf + + bdd	Sum		b + 16.a

	b + 7.a		b + 9.a		b - 9.a
To be added	....	To be added	....	To be added	....
	- 9.a		b - 7.a		b +7.a
Sum	b - 2.a	Sum	2.b - 2.a	Sum	2.b - 2.a

Examples of subtraction.

Being placed	.... a	Being placed	.... aa	Being placed	..................aaa
To be taken	.... .b	To be taken	.... .bc	To be taken	...................bcc
Remaining	.... a - b	Remaining	.... aa - bc	Remaining	........aa a - bcc

Being placed	....	a + b	Being placed	....	a + b
To be taken	....	a + d	To be taken	....	c - d
Remaining		b - d	Remaining		a + b - c + d
Being placed	....	a + b	Being placed	....	a + b
To be taken	....	- d	To be taken	....	- b
Remaining		a + b + d	Remaining		a + 2.b
Being placed	....	a + b	Being placed	....	aa + cc
To be taken	....	c + b	To be taken	....	aa + cc
Remaining		a - c	Remaining		0
Being placed	....	aaa + cdf - ddd			
To be taken	....	aaa +bdd +ddd			
Remaining		cdf - bdd - 2ddd			
Being placed	....	b + 7.a	Being placed	....	b + 7.a
To be taken	....	+9.a	To be taken	....	-9.a
Remaining		b - 2.a	Remaining		b +16.a
Being placed	....	b + 9.a	Being placed	....	b - 9.a
To be taken	....	b - 7.a	To be taken	....	b +7.a
Remaining		+16.a	Remaining		-16.a

Examples of multiplication.

	a		bc
To be multiplied		To be multiplied	
	b		d
Product	ab	Product	bcd
	aa		bbb
To be multiplied		To be multiplied	
	bb		bb
Product	aabb	Product	bbbbb
	bbcc		b + a
To be multiplied		To be multiplied	
	dd		b + a
Product	bbccdd	Product	bb + 2.ba + aa
	b - a		b + a
To be multiplied		To be multiplied	
	b - a		b - a
	bb - ba		bb + ba
	- ba + aa		-ba - aa
Product	bb -2.ba + aa	Product	bb - aa
	b + c + d		b + c - d
To be multiplied		To be multiplied	
	a		b - c + d
Product	ba + ca + da		bb + bc - bd
			-bc - cc + dc
			+bd +dc - dd
		Product	bb - cc +2.cd - dd

Examples of division or placing upon.

Dividend	....	bbcc	Dividend	....	bcdc
Divisor	....	cc	Divisor	....	bdc
Quotient		bb	Quotient		c
Dividend	....	bcdf	Dividend	....	bc +ca + da
Divisor	....	cf	Divisor	....	a
Quotient		bd	Quotient		b + c + d
Dividend	....	ba +ca +da	Dividend	....	bb +2.ba + aa
Divisor	....	b + c + d	Divisor	....	b + a
Quotient		a	Quotient		b + a
Dividend	....	bb - aa	Dividend	....	bb - aa
Divisor	....	b - a	Divisor	....	b + a
Quotient		b + a	Quotient		b - a

These last three examples are evident from the previous generation.

Note.

If the form of division formulated by the operation of placing under, instead of the words Dividend, Divisor, and Quotient, [the words] Placed Upon [Applicatum], Measuring [Metiens], and Outcome [Ortuum] can be invoked or [words] similar to these, or by similar means.

Signs for comparison made use of in what follows.

Being Equal $=$ *as a* $=$ *b means a is equal to b itself.*

Being Greater $>$ *as a* $>$ *b means a is greater than b.*

Being Lesser $<$ *as a* $<$ *b means a is less than b.*

Reducible fractions on reduction are equal to themselves .

$$\frac{ba}{b} = a \quad\Big|\quad \frac{bca}{b} = ca \quad\Big|\quad \frac{bca}{c} = ba \quad\Big|\quad \frac{bcda}{ca} = bd$$

$$\frac{ba}{c} + d = \frac{ba}{c} + \frac{dc}{c} = \frac{ba + dc}{c} \quad\Big|\quad \frac{ac}{b} + d = \frac{ac + bd}{b}$$

$$\frac{ac}{b} + \frac{dd}{g} = \frac{acg}{bg} + \frac{bdd}{bg} = \frac{acg + bdd.}{bg}$$

$$\frac{ac}{b} - d = \frac{ac}{b} - \frac{db}{b} = \frac{ac - db}{b}$$

$$\frac{ac}{b} - \frac{dd}{g} = \frac{acg}{bg} - \frac{ddb}{bg} = \frac{acg - ddb.}{bg}$$

$$\left.\begin{array}{c}\frac{ac}{b}\\ b\end{array}\right| = \frac{acb}{b} = ac \quad\Big|\quad \left.\begin{array}{c}\frac{ac}{b}\\ d\end{array}\right| = \frac{acd}{b} \quad\Big|\quad \left.\begin{array}{c}\frac{ac}{b}\\ \frac{dd}{g}\end{array}\right| = \frac{acdd}{bg}$$

$$\frac{\frac{aaa}{b}}{d} = \frac{aaa}{bd} \quad\Big|\quad \frac{bg}{\frac{ac}{d}} = \frac{bgd}{ac} \quad\Big|\quad \frac{\frac{bbb}{c}}{\frac{aaa}{dg}} = \frac{bbbdg}{caaa}$$

Examples of equations of irregular form reduced to the legitimate form:

By Antithesis or transposition of particular [terms], *which is done by ordinary addition.*

Let . . . . $aa - dc = gg$, , , , *be the equation to be reduced.*

To be added to both sides . . . . $+ dc$

Thus, ... $aa = gg + dc$ *. . . . . shall be reduced.*

In like manner . . . . $aa - dc = gg - ba$, , , , *to be reduced.*

To be added to both sides . . . . $+ dc + ba$

Then, ... $aa + ba = gg + dc$, , , , *is reduced.*

By ordinary division, how a given homogeneous [term] *can be cancelled from the components by a degree* [power], *which is called the Depression of Viete.*

Let . . . . $aaa + baa = dca$, , , , *be the equation to be reduced.*

Therefore . . . . $\frac{aaa}{a} + \frac{baa}{a} = \frac{dca}{a}$

Therefore, ... $aa + ba = dc$, , , , *is reduced.*
