

Than this the third term,—If greater 'tis known
That of the two numbers the greater comes down
For the term that is second, or term number two;
While the less number's first, as the pencil will show.
But if smaller your answer than term number three,
Reverse the two terms, let the less second be,
Then the second and third you next multiply,
And divide by the first and the answer is nigh.

Alligation.

Alligation is mingling or mixing together,
Tens, sugars or spirits (and one thing or other),
It divides itself thus, (now be sure and learn it),
Alligation Medial, Alligation Alternate.

Alligation Medial.

Alligation Medial is finding the mean,
The middle or average 'twixt either extreme
Of several simples, some less and some greater;
So read o'er these lines, and they'll learn you its
nature.

RULE.

Supposing a merchant has three kinds of tea,
At 10 shillings, 5 shillings, and shillings 3,
Which he wishes to mix and together confound,
And then wants to know what's the worth of a pound,
Add your 10 and your 5 and your 3 as you mix,
And divided by 3, the quotient is 6.

Six shillings per pound, price of the mixture.

Alligation Alternate.

Alligation Alternate is the rule that finds,
What quantity of any number of simples or kinds,
Whose rates are all given, direct as we state,
To compose a mixture of a specified rate.

RULE.

Arrange in a column your rates for command,
And place the mean rate off at the left hand,
Each rate that is less than the middle or mean,
Join with one that is greater, as is plain to be seen,
Place the difference 'tween each rate and mean kind,
Opposite that with which it is joined.

Square Root.

RULE.

Divide into periods of two figures each,
The number you know, as the pedagogues teach,—
In the left hand period find the greatest square,
Which from it subtract, and to what remains there
Bring the next period down for a Dividend (fair):
Place the root of the square at the right hand of all,
And two times the root a Divisor we call.

If greater, place the greater of the two remaining
numbers for the second term.

If less, place the lesser of the remaining numbers,
for the second term.

In either case, multiply the second and third terms
together, and divide by the first term; and the quo-
tient will be the fourth term, or answer.

Alligation.

ALLIGATION is mixing together several sim-
ples of different qualities, or prices, so that the compo-
sition may be of some intermediate quality or price.
It is of two kinds, *Alligation Alternate*, and *Alli-
gation Medial*.

Alligation Medial.

ALLIGATION MEDIAL, is finding the mean or
average proportion or price, of several numbers or
prices.

RULE.

Add together the several prices or ingredients, and
divide the amount by the number of ingredients.

Or when there are a greater number than one of
each kind,

Multiply the number by the price, set the products
in a column, add the several products together, and
divide the amount by the amount of the several
ingredients, and the quotient is the mean price of the
composition.

Alligation Alternate.

ALLIGATION ALTERNATE teaches to find
what quantity of any number of simples, whose
rates are all given, will compose a mixture of any
specified rate.

RULE.

Arrange the rates of the simples in a column under
each other, with the mean price at the left hand.

Connect each rate, that is less than the mean rate,
with one or more that is greater; place the difference
between each rate and mean price opposite that with
which it is joined, and it will be the quantity required.

Square Root.

RULE.

Divide your number into periods of two
figures each, by putting a point over the unit figure,
and every second figure from the place of units.

Find the greatest square in the left hand period,
and put the result in the root, at the right of the
number.

Square this figure, and place the square under