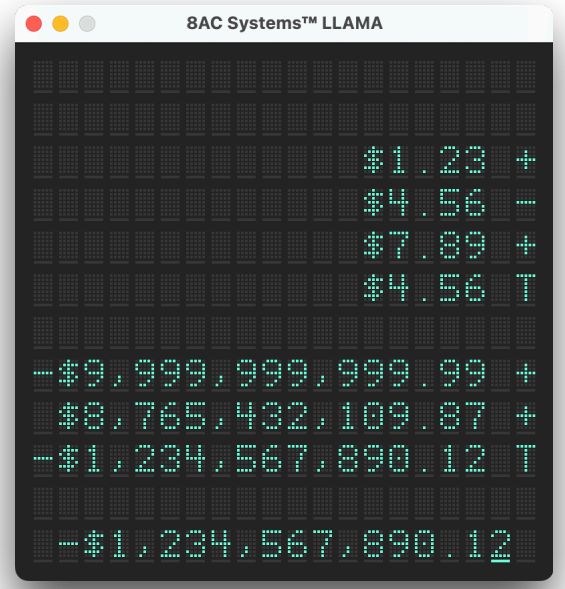
*The shortest distance between work begun and job well done®*

*8AC Systems™*
*Trailing Edge Labs™*
LLAMA

The Li'l, Likeable Adding-Machine App

**User's Guide**

October 2024



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LLAMA User's Guide

## Introduction

### Overview

Greetings!  We're glad you're investing the time to get to know LLAMA (the Li'l, Likeable Adding-Machine App), a 12-digit PQRS* financial calculator, because proficient use of it will help you make short work of your number-crunching jobs.

Unlike a conventional calculator, an adding machine is specialized for bookkeeping tasks such as balancing your checkbook, doing your taxes, or recording your business's financial transactions.  Its primary purpose is to total monetary values.

*Did You Know?*

American inventor William S. Burroughs (1857 – 1898) commercialized mechanical adding machines in 1892.

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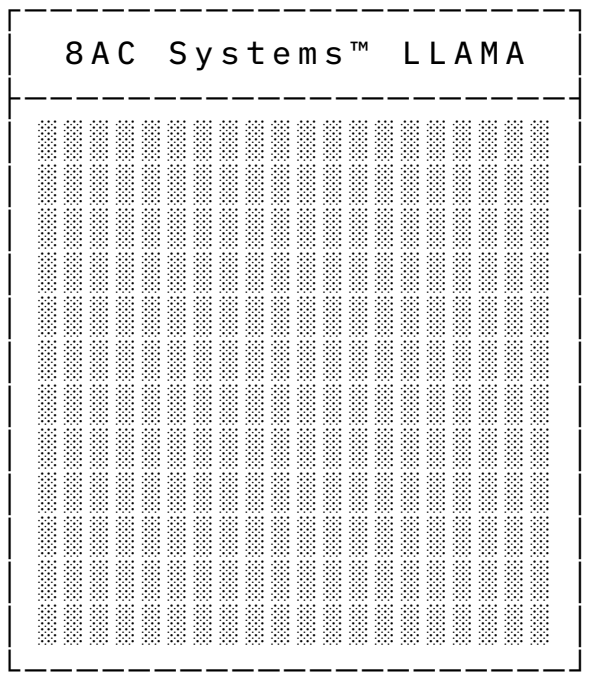
*Product, Quotient/Remainder, Sum (see Glossary)

**Input/Output**

LLAMA takes input from your computer's keyboard and produces output on a simulated (20 x 12)-character vacuum fluorescent display (VFD).



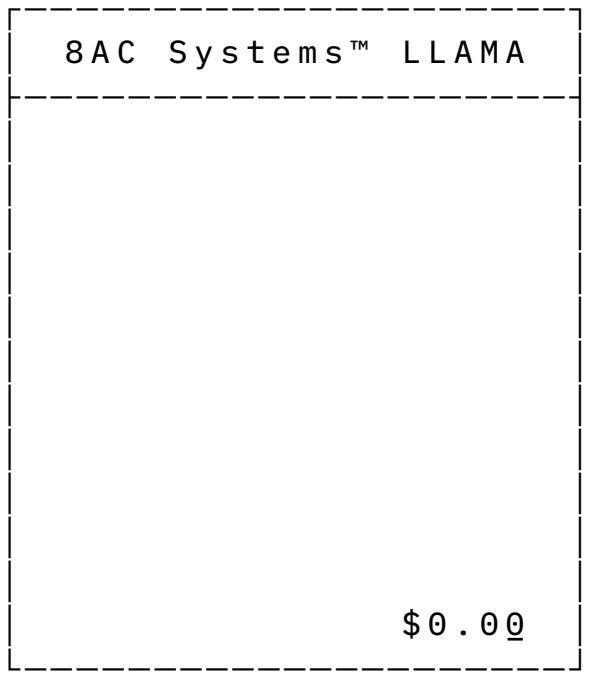

*In Case You Didn't Know...*

To *press* a *key*, first press the key down, then release it.

Now, let's use the Command + C key combination, which is the default keyboard shortcut for the *Edit* > *Copy* menu command, to demonstrate how to *press* a *key combination*: first, press and hold the Command key down; then, press the C key down; finally, release both keys

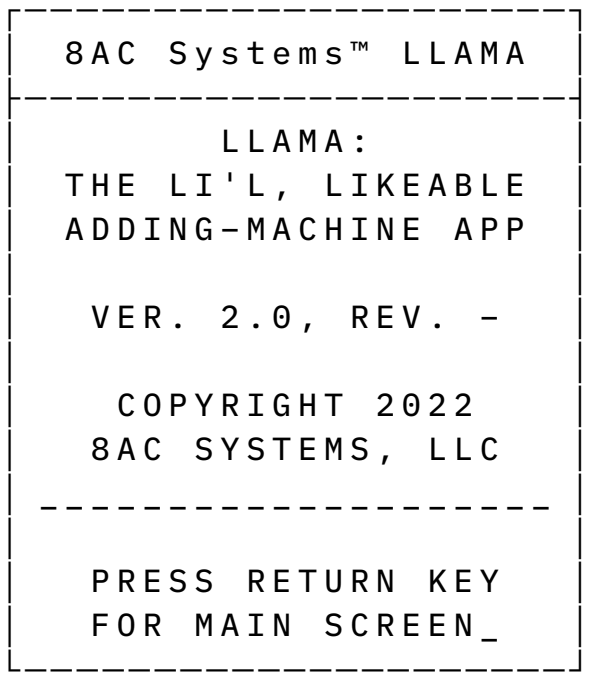
**Startup**

Go ahead and open LLAMA, but don't be put off by its starkness.  Your faithful servant merely awaits your initial input.



**About**

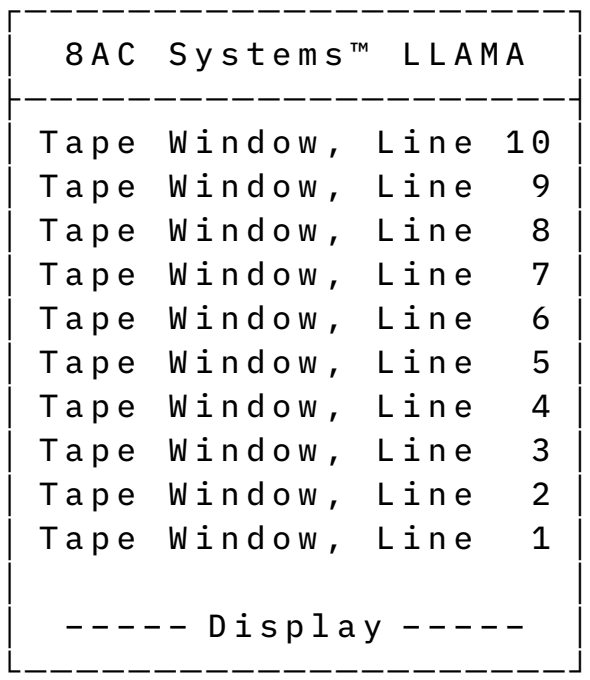
In the menu bar, click on *LLAMA* > *About LLAMA* to see its particulars.




Press Return to return to the main screen.

**Main Screen**

Although not immediately obvious, LLAMA's main screen incorporates a 10-line window into a 100-line scrolling and scrollable "tape" and an 18-character "display".



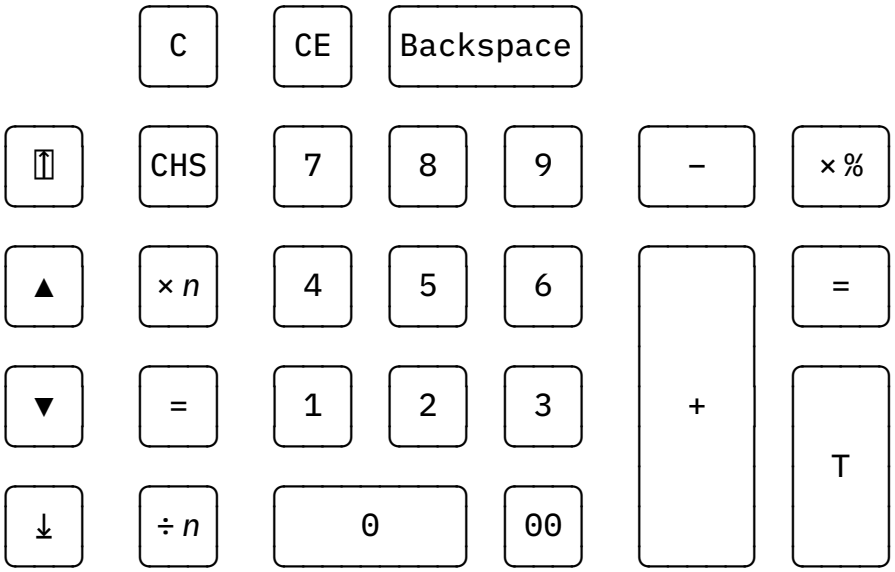
**Behind the Scenes**

*Important!*

LLAMA's *accumulator* stores a monetary value that serves as an augend or minuend (see Glossary). It keeps a running total (aka cumulative sum) of its addends and subtrahends (see Glossary). When you open LLAMA, the accumulator contains: $0.00

**Notional Keypad**

If LLAMA had a keypad, it might look like this:



**Clear Key**

LLAMA's notional Clear key and its keyboard equivalents are shown below:


: c / C

Pressing the notional Clear key not only **zeroes out** the monetary values in **the accumulator** and on the display but also aborts the process of entering a multiplication or division expression.

**Tape-Control Keys**

LLAMA's notional tape-control keys and their keyboard equivalents are shown below:

Discard Tape  : Command + ▲

Scroll Up  : ▲

Scroll Down  : ▼

Go to Bottom  : End/ Option + ▼

**Reset**

To reset LLAMA to its startup state,

first press 

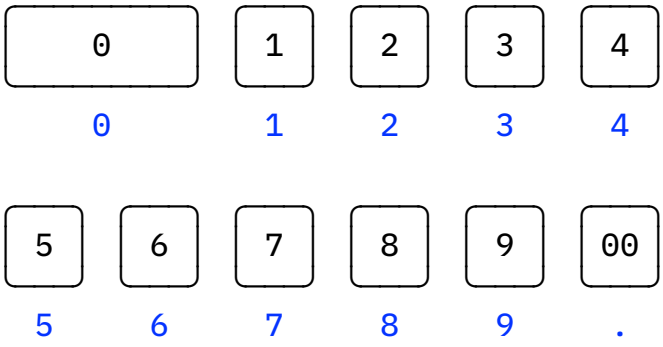
, then press 
.

In other words, press the notional Clear key (c / C),
then press the notional Discard Tape key (Command + ▲).

Voilà!

**Data-Entry Keys**

LLAMA's notional data-entry keys and their keyboard equivalents are shown below:




Change Sign CHS : |

Backspace : Delete

Clear Entry CE : Esc / Clear

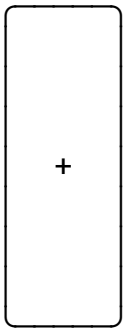
Correct minor mistakes with the notional Backspace key.

Correct major mistakes with the notional CE key.

## Addition/Subtraction

### Keys

LLAMA's notional Plus, Minus, and Total keys and their keyboard equivalents are shown below:

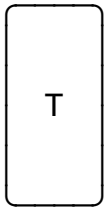



\+

Adds the monetary value on the display to the one in the accumulator


\-

Subtracts the monetary value on the display from the one in the accumulator




Enter / Return

Outputs then **zeroes out** the monetary value in the accumulator

**Example #1**

Calculate:  $1.23 – $4.56 + $7.89

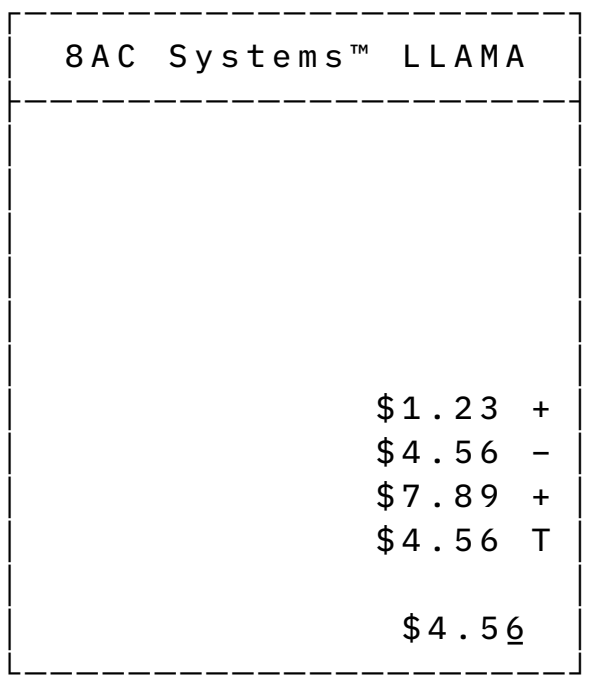
0. Reset LLAMA (see pp. 8 and 10) so your screen will match the one below.

1. Type **123+** to add $1.23 to the $0.00 in the accumulator, which, in essence, loads $1.23 into the accumulator.

2. Type **456–** to subtract $4.56 from the $1.23 in the accumulator ($1.23 – $4.56 = –$3.33).

3. By now, you know the drill.  Type **789+** to add $7.89 to the –$3.33 in the accumulator.

4. Press the notional Total key (Enter / Return).



**Example #2**

Calculate $1.23 – $4.56 + $7.89 showing the partial sum.

Note: $1.23 – $4.56 + $7.89 = $1.23 + –$4.56 + $7.89

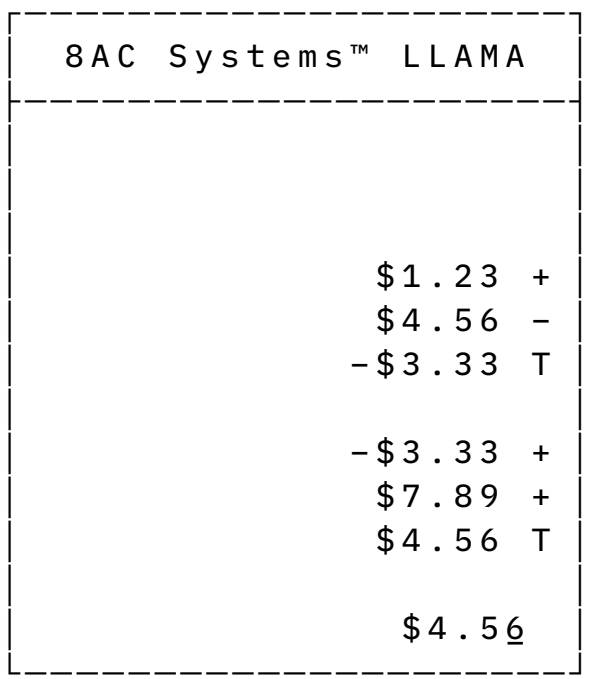
0. Reset LLAMA so your screen will match the one below.

1. Type: **123+456–**

2. Press Enter or Return. Recall that doing so zeroes out the value in the accumulator (see p. 12).

3. Type: **+789+** (The leading plus sign adds the –$3.33 intermediate result to the $0.00 in the accumulator.)

4. Press Enter or Return.



**Example #3**

Calculate:  $24.69 × 5

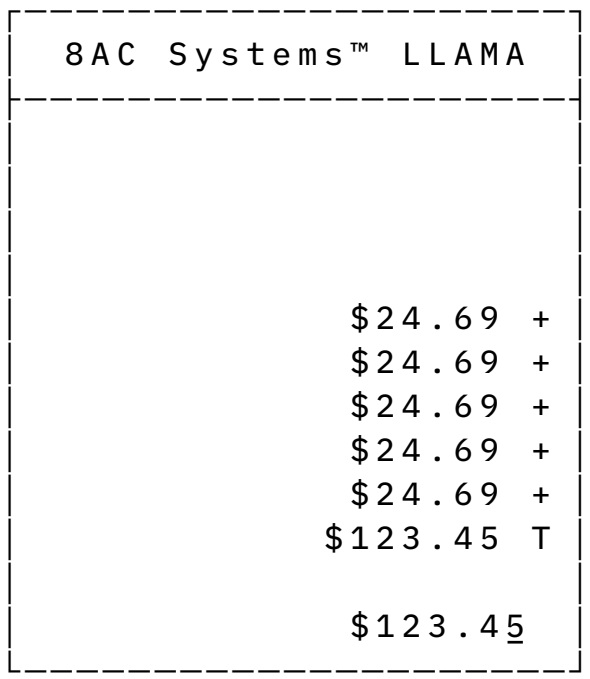
LLAMA's an adding machine, so let's add!

$24.69 × 5 = $24.69 + $24.69 + $24.69 + $24.69 + $24.69

0.  Reset LLAMA so your screen will match the one below.

1.  Type:  **2469+++++** (**2469** followed by five plusses)

2.  Press Enter or Return.



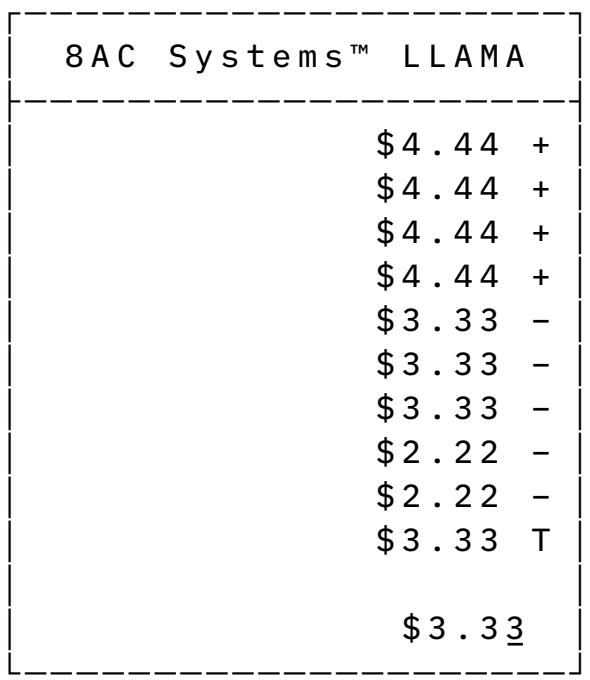
**Example #4**

Calculate:  $4.44 × 4 – $3.33 × 3 – $2.22 × 2

0.  Reset LLAMA so your screen will match the one below.

1.  Type:  **444++++333---222--**

2.  Press Enter or Return.



## Multiplication/Division

### Keys

LLAMA's notional Times Rate, Times, Divided By, and Equals keys and their keyboard equivalents are shown below:

| | | |
|---|---|---|
| × % | % | Multiplies the monetary value on the display by a percentage ranging from 0% to 99.9999% |
| × *n* | * | Multiplies the monetary value on the display by a whole number between 0 and 999,999,999,999 |
| ÷ *n* | / | Divides the monetary value on the display by a whole number between 0 and 999,999,999,999 |
| = = | = | Outputs the result of the multiplication or division operation |

**Example #1**

Calculate: $4.00 × 25 using the notional [×*n*] key

0. Reset LLAMA so your screen will match the one below.

1. Type one of the following:
   a. **400*25**
   b. **4.*25**

2. Press: =

```
┌──────────────────────┐
│  8AC Systems™ LLAMA  │
├──────────────────────┤
│                      │
│                      │
│                      │
│                      │
│                      │
│                      │
│                      │
│                      │
│            $4.00  × │
│               25  = │
│          $100.00  P │
│                      │
│           $100.00   │
└──────────────────────┘
```

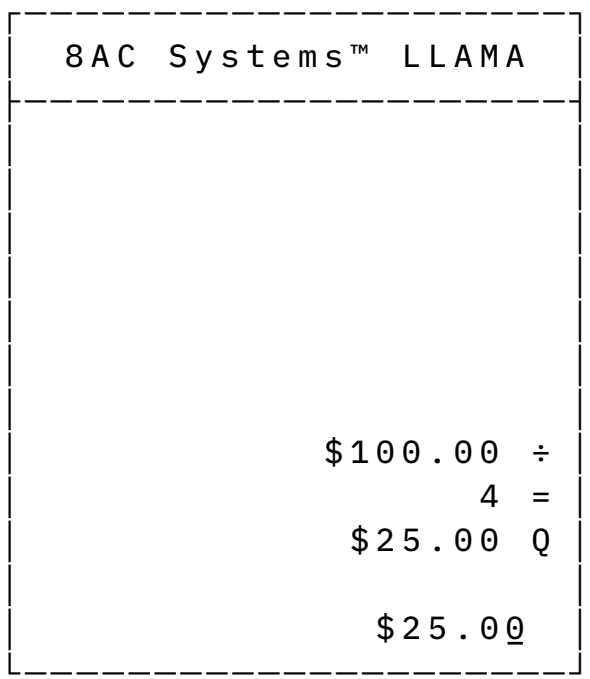
**Example #2**

Calculate: $100.00 ÷ 4 using the notional [÷ *n*] key

0. Reset LLAMA so your screen will match the one below.

1. Type one of the following:
   a. **10000/4** (the longest)
   b. **100./4**
   c. **1.00/4**
   d. **10.0/4** (the strangest)
   e. **1../4** (the shortest)

2. Press: =



**Example #3**

Calculate: $100.00 ÷ 3 using the notional [÷ *n*] key

0. Reset LLAMA so your screen will match the one below.

1. Type one of the following:
   a. **10000/3**
   b. **100./3**
   c. **1.00/3**
   d. **10.0/3**
   e. **1../3**

2. Press: =

```
┌──────────────────────┐
│  8AC Systems™ LLAMA  │
├──────────────────────┤
│                      │
│                      │
│                      │
│                      │
│                      │
│                      │
│                      │
│            $100.00 ÷ │
│                   3 = │
│             $33.33 Q │
│              $0.01 R │
│                      │
│              $33.33  │
└──────────────────────┘
```

**Example #4**

Calculate:  Total cost of $100.00 meal w/20% tip

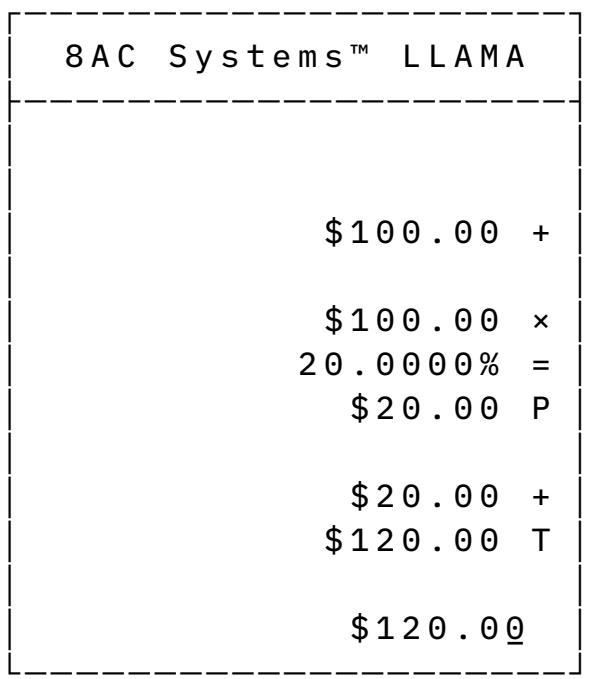
0. Reset LLAMA so your screen will match the one below.

1. Type **10000+**, **100.+**, **1.00+**, **10.0+**, or **1..+** to add the amount of the check to the value in the accumulator.

2. Determine the tip amount using the notional [×%] key by typing **%20..=** or equivalent input.

3. Type **+** to add the tip to the value in the accumulator.

4. Press Enter or Return.



**Glossary**

*Two-Number Addition*

**augend** *n*. the number to which the other is added

**addend** *n*. the number that is added to the other

**sum** *n*. the result of adding the addend to the augend

*Two-Number Subtraction*

**minuend** *n*. the number from which the other is subtracted

**subtrahend** *n*. the number that is subtracted from the other

**difference** *n*. the result of subtracting the subtrahend from the minuend

*Two-Number Multiplication*

**multiplicand** *n*. the number that is multiplied by the other

**multiplier** *n*. the number by which the other is multiplied

**product** *n*. the result of multiplying the multiplicand by the multiplier

*Two-Number Division*

**dividend** *n*. the number that is divided by the other

**divisor** *n*. the number by which the other is divided

**quotient** *n*. the result of dividing the dividend by the divisor

**remainder** *n*. the portion of the dividend that is not evenly divisible by the divisor