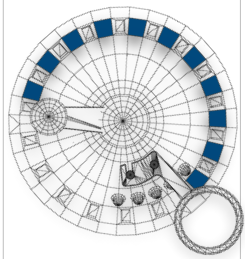
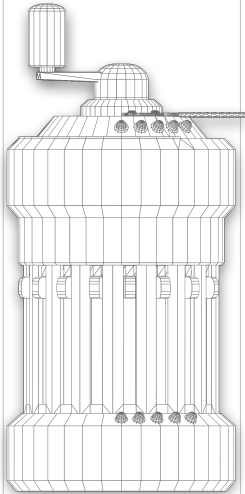


CURTA

ALGORITHMS



R U L E O F T H R E E

- a **Rule of three** - 1st method
- b **Rule of three** - 2nd method
- c **Rule of three** - 3rd method - Simultaneous calculation
- d **Rule of three** with complementary division - Type II
- e Extended **rule of three**

1D
a

Rule of three - 1 st method		Setting	Carriage/Inverter	Turns	Counter	Product
$(180 \times 46) \div 144$ $(a \times b) \div c = ?$		Clear	↑		Clear	Clear
1	Calculate $a \times b$ with shortened multiplication. $46 \times (200 - 20)$. (See 1Bc)	Set b 8 7 6 5 4 3 2 1 4 6	6 5 4 3 2 1 ▲	2 +	2 ▲	9 2 11 10 9 8 7 ▲ 5 4 3 2 1
	Partial result in PR: 8280.000	4 6	6 5 4 3 2 1 ▲	2 -	1 8 0 ▲	8 2 8 0,0 11 10 9 8 7 6 ▲ 4 3 2 1
2			↓		Clear	
3	Calculate $(a \times b) \div c$ with division by subtractive method. (See 1Cc) Bring PR to 0	Set c 8 7 6 5 4 3 2 1 1 4 4	5	5 -	5 ▲	1 0 8 11 10 9 8 7 6 ▲ 4 3 2 1
		1 4 4	4	7 -	5 7	7 2
4	Décimal rule, $dpPR - dpSR = dpR$, $3 - 0 = 3$ Result: 57.5, no remainder	1 4 4	6 5 4 3 2 1 ▲	5 -	5 7,5 ▲	

Source: "Computing examples for the Curta", Contina / Bernard Stabile - 2023

1D
b

Rule of three - 2nd method

$(180 \times 46) \div 144$

$(a \times b) \div c = ?$

Setting

Carriage/Inverter

Turns

Counter

Product

Clear



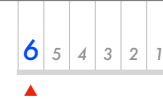
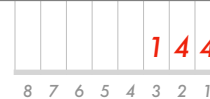
Clear

Clear

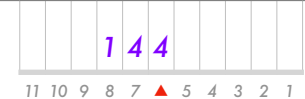
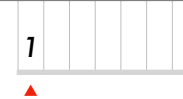
1

Calculate $a \div c$ with division by additive method. (See 1Ca)
Develop 180 in PR

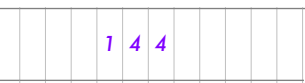
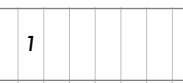
Set c



+



+

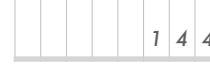


2 +

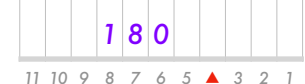


2

Décimal rule, $dpPR - dpSR = dpR, 5 - 0 = 3$
Partial Result: 1.25



5 +



3

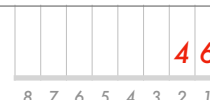


Clear

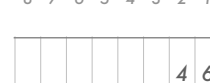
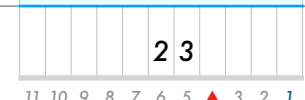
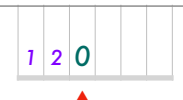
4

Calculate $(a \div c) \times b$ with multiplication 1Bf
Make additive turns until the counter is clear

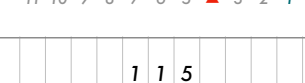
Set b



5 +

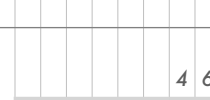


2 +

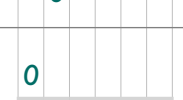


5

Décimal rule, $dpPR - dpSR = dpR, 5 - 0 = 3$
Result: 57.5



+



Source: " Computing examples for the Curta", Contina / Bernard Stabile - 2023

1D

Rule of three - 3rd method - Simultaneous calculation

C

		Setting	Carriage/Inverter	Turns	Counter	Product
	$(180 \times 46) \div 144$ $(a \times b) \div c = ?$	Clear	↑		Clear	Clear
1	Set c in the left hand of SR and b in the right hand of SR Calculate $a \div c$ with division by additive method. (See 1Ca) The quotient of this division is multiplied by b in the right hand of PR	1 4 4 4 6 8 7 6 5 4 3 2 1	6 5 4 3 2 1 ▲	+	1 ▲	1 4 4 4 6 11 10 9 8 7 6 5 ▲ 3 2 1
		1 4 4 4 6	3 ▲	2 +	1 2 ▲	1 7 2 8 5 5 2
2	Décimal rule, $dpPR - dpSR = dpR$, $3 - 0 = 3$ Result in the right hand of PR: 57.5	1 4 4 4 6	6 5 4 3 2 1 ▲	5 +	1 2 5 ▲	1 8 0 5 7.5 11 10 9 8 7 6 5 4 3 ▲ 1

Source: "Computing examples for the Curta", Contina / Bernard Stabile - 2023

1D

C

Rule of three with complementary division - Type II

For Curta type II. In a division calculation, instead of setting the dividend in PR and proceeding by subtractive division, there may, in some cases, be an advantage in setting the complement of the dividend in PR and develop PR to zero with the divisor set in SR.

This is particularly the case with such calculations as a rule of three carried out in one operation, when we wish to obtain the maximum capacity of which the machine is capable. Begin with inverter down.

$(123 \times 456789) \div 234567 = ?$		Setting	Carriage/Inverter	Turns	Counter	Product
$(a \times b) \div c = ?$		Clear	↓		Clear	Clear
1	Inverter down. Set the second factor b Find the complement of the second factor in PR	4 5 6 7 8 9 11 10 9 8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1 ▲	-	1 ▲	9 9 9 9 5 4 3 2 1 1 15 14 13 12 11 10 9 8 7 ▲ 5 4 3 2 1
2			↑		Clear	
3	Set c in right hand of SR and a in left hand of SR	1 2 3 2 3 4 5 6 7 11 10 9 8 7 6 5 4 3 2 1	6	+	1 ▲	1 2 2 9 7 7 7 7 7 8 15 14 13 12 11 10 9 8 7 ▲ 5 4 3 2 1
	Calculate $a \times (b \div c)$ in left of PR Right PR tends towards 0 Positive turns until 0 appears in front of the '0' of SR Then bring the right hand of PR negative with a negative turn	1 2 3 2 3 4 5 6 7	5	10 +	2 0	2 4 6 0 0 1 2 3 4 5 1 2 3 ↑ 2 3 4 5 6 7
		1 2 3 2 3 4 5 6 7	5	-	1 9	2 3 3 6 9 8 8 8 8 3
		1 2 3 2 3 4 5 6 7	4	5 +	1 9 5	2 3 9 8 5 0 0 6 1 6 6 5 1 2 3 ↑ 2 3 4 5 6 7
		1 2 3 2 3 4 5 6 7	4	-	1 9 4	2 3 8 6 1 9 8 2 7 0 9 8
		1 2 3 2 3 4 5 6 7	3	8 +	1 9 4 8	2 3 9 6 0 4 0 1 4 7 5 1 6 1 2 3 ↑ 2 3 4 5 6 7
		1 2 3 2 3 4 5 6 7	3	-	1 9 4 7	2 3 9 4 8 0 9 9 1 2 9 4 9

(123 x 456789) ÷ 234567 = ?		Setting	Carriage/Inverter	Turns	Counter	Product
3		1 2 3 2 3 4 5 6 7		2	4 +	1 9 4 7 4 2 3 9 5 3 0 2 0 0 6 7 7 5 8 1 2 3 ↑ 2 3 4 5 6 7
		1 2 3 2 3 4 5 6 7		2	-	1 9 4 7 3 2 3 9 5 1 7 8 9 8 3 3 1 9 1
		1 2 3 2 3 4 5 6 7		1	8 +	1 9 4 7 3 8 2 3 9 5 2 7 7 4 0 2 0 8 4 4 6 1 2 3 ↑ 2 3 4 5 6 7
4	Décimal rule, $dpPR - dpSR = dpR$, $5 - 0 = 5$ In CR, we find the quotient of $b ÷ c$, 1.94737 Result in left hand of PR: 239.5265	1 2 3 2 3 4 5 6 7		1	-	1.9 4 7 3 7 2 3 9.5 2 6 5 0 9 9 7 3 8 7 9 ▲ 15 14 13 12 11 10 9 8 7 6 5 4 3 2 ▲

Source: " Curta calculating techniques " / Bernard Stabile - 2023

1D
e

Extended rule of three

$A = a \div c$, $B = A \times b$, $C = B \div d$

(325 x 677) ÷ (12 x 119) = ?		Setting	Carriage/Inverter	Turns	Counter	Product	
(a x b) ÷ (c x d) = ?		Clear	↑		Clear	Clear	
1	Calculate $A = a \div c$ with division by additive method. (See 1Ca) Develop PR as close as possible to a (325)	Set c	1 2	6 5 4 3 2 1	3 +	3	3 6
		1 2	4	3 -	2 7	3 2 4	
		1 2	3	+	2 7 1	3 2 5 2	
2	Décimal rule, $dpPR - dpSR = dpR$, $3 - 0 = 3$ Partial result $A = 27.083$	1 2	2	2 -	2 7 0 8	3 2 4 9 6	
		1 2	1	3 +	27.083	3 2 4 9 9 6	
3			↓		Clear		
4	Calculate $B = A \times b$ with multiplication 1Bf Reduce CR to 0 with positive turns	Set b	6 7 7	6 5 4 3 2 1	3 +	270.80	2 0 3 1
		6 7 7	2	8 +	2 7 0 0	5 6 1 9 1	
		6 7 7	4	7 +	2 0	4 7 9 5 1 9 1	
5	Décimal rule, $dpSR + dpCR = dpR$, $0 + 3 = 3$ Partial Result $B = 18335.191$	6 7 7	5	2 +	0	1 8 3 3 5 1 9 1	

		Setting	Carriage/Inverter	Turns	Counter	Product
$(325 \times 677) \div (12 \times 119) = ?$		1 1 9 8 7 6 5 4 3 2 1	6 5 4 3 2 1 ▲	—	1 ▲	6 4 3 5 1 9 1 11 10 9 8 7 ▲ 5 4 3 2 1
6	Calculate $C = B \div d$ with division by subtractive method. (See 1Cc) Reduce PR as close as possible to 0 Set d	1 1 9	5	5 —	1 5	4 8 5 1 9 1
		1 1 9	4	4 —	1 5 4	9 1 9 1
		1 1 9	3	o	1 5 4	9 1 9 1
		1 1 9	2	7 —	1 5 4 0 7	8 6 1
7	Decimal rule, $dpPR - dpSR = dpR, 3 - 0 = 3$ In PR, the remainder: 0.028 Final result $C = 154.077$	1 1 9	6 5 4 3 2 1 ▲	7 —	1 5 4 . 0 7 7 ▲	0 . 0 2 8 11 10 9 8 7 6 5 4 3 2 ▲

Source: "Computing examples for the Curta", Contina / © Bernard Stabile - 2023