Multicultural Multiplication

U.S. Method 1

Method 1: Multiplying two digit numbers by using an algorithm (The U.S. American Way of Multiplication)

B4

38 → Multiply first number on bottom row by both numbers.

x 54 → Add a zero on the second line and repeat first step with second number.

152

1900

2,052 → Add remaining numbers.

U.S.

Method 2: Multiplying two digit numbers using place value skills.

45 x 12 = 540 → Multiply by 10's place

45 x 10 = 450

45 x 2 = 90 → Multiply by 1's place

540 → Add Results.

→ Both Methods are highly used throughout the U.S.

Method 3: Multiply Double-Digits using the Egyption method. (Doubling Method)

$25 \times 32 = ?$

(1) →	32
2	64
4	128
(8) →	256
(16) →	512

→ Always start with 1 in the first column.

→ Double the number 1 until the number would be bigger than the number in problem.

-Rewrite second number under the orginal # and start Doubling.

→ Find a combination of numbers in the first column that add up to first number.

1	32
8	256
16	512
25	(800)

→ This method uses binary to do the calculation and it is what Computers use as well.

Method 4: Russian Peasant Multiplication using two-digit numbers.

$36 \times 11 = ?$

~~36~~	11	x1
~~18~~	~~22~~	x2
9	44	x4
~~4~~	~~88~~	x8
~~2~~	~~176~~	x16
1	352	x32

352
+ 44
(396)

→ The first number is cut in half rounding down until 1 is reached.

→ The second number is doubled every time down the row until reaching 1.

→ Cross out even numbers and add up the remaining odd numbers in the second column.

Easier to see example:

$4 \times 6 = 24$
$2 \times 12 = 24$
$8 \times 3 = 24$

} By doubling and halfing we don't change the answer.

→ This method uses binary as well, but in a different way.

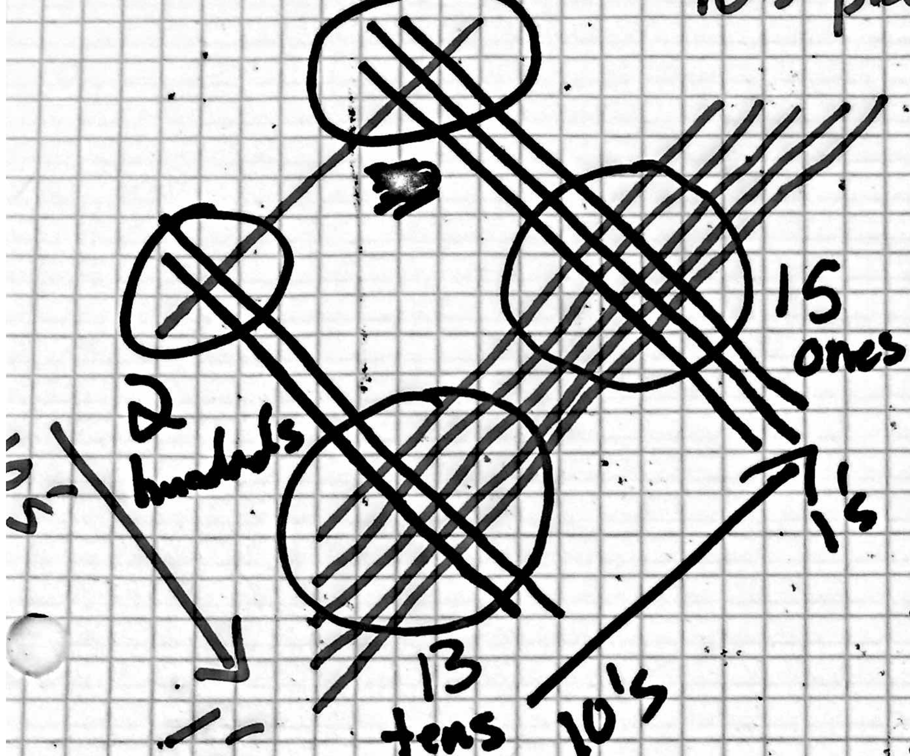
(1)	70
2	140
(4)	280
8	560
(16)	1120

(32) 2240

370

Method 5: Multiplying two-digit numbers using Japanese Multiplication.

15 x 23



→ Draw lines for the 10's place and the 1's place

→ Draw lines for the 10's place and lines for the 1's place.

→ Count up the intersecting points, going from right to left.

~~2~~	~~13~~	1	15
3	14		
	4		5

345

→ Carry additional numbers over "9" to the next column to add to the total.

→ Once all numbers are "carried", you have the answer.