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Group: 911

Homework - Items

Student 1

Subject 1 - Student 1.

$b_1 = 16$

$x = 1257A9_{(16)}$

$y = 350F6_{(16)}$

The addition of the two numbers is performed starting with the units digit (with index 0), from right to left, the process being repetitive with a number of max $(m,n) + 1$ iteration (m,n - nules of digits - 1)

At each iterations, the digits (after they have been converted to decimal) from the homologus positions and the carry digit (0 or 1) from the previous iteration are added.

The sum provides 2 digits:

- the transport figure used in the next iteration is the quotient of dividing the sum by base.
- the positionally corresponding figure in member C is the remainder of dividing the sum by base

$1257A9_{(16)} + 350F6_{(16)} = ?_{(16)}$

$m = 6 \qquad n = 5.$

$0\ 0\ 0\ 0\ 0\ 0$
$1\ 2\ 5\ 7\ A\ 9_{(16)} +$
$0\ 3\ 5\ 0\ F\ 6_{(16)}$
$\overline{1\ 5\ A\ 8\ 9\ F_{(16)}}$

$i = 0 \quad t_0 = 0$

$9_{(16)} + 6_{(16)} + 0_{(16)} = 9 + 6 + 0 = 15_{(16)}$

$t_1 = [15/16] = 0$

$c_0' = 15 - 0 \cdot 16 = 15 \Rightarrow C_0 = F_{(16)}$

$i=1 : t_1 = 0$

~~$A_{(16)} + F_{(16)} = 10 + 15 + 0_{(16)} = 25$~~

$A_{(16)} + F_{(16)} + 0_{(16)} = 10 + 15 + 0 = 25$

$t_2 = [25/16] = 1 \;,\; c_1' = 25 - 1 \cdot 16 = 9$

$c_1 = 9_{(16)}$

$i=2 : t_2 = 1.$

$7_{(16)} + 0_{(16)} + 1_{(16)} = 7 + 0 + 1 = 8.$

$t_3 = [8/16] = 0 \;,\; c_2' = 8 - 0 \cdot 16 = 8.$

$c_2 = 8_{(16)}$

$i=3 : t_3 = 0.$

$5_{(16)} + 5_{(16)} + 0_{(16)} = 5 + 5 + 0 = 10.$

$t_4 = [10/16] = 0 \;,\; c_3' = 10 - 0 \cdot 16 = 10$

$c_3 = A_{(16)}$

$i=4 : t_4 = 0.$

$2_{(16)} + 3_{(16)} + 0_{(16)} = 2 + 3 + 0 = 5$

$t_5 = [5/16] = 0 \;,\; c_4' = 5 - 0 \cdot 16 = 5$

$c_4 = 5_{(16)}$

$i=5 : t_5 = 0.$

$1_{(16)} + 0_{(16)} + 0_{(16)} = 1 + 0 + 0 = 1.$

$t_6 = [1/16] = 0 \;,\; c_5' = 1 - 0 \cdot 16 = 1$

$c_5 = 1_{(16)}$

$\Rightarrow \boxed{D = 15A89F_{(16)}}$

$b_2 = 8$

$x = 135246_{(8)}$

$y = 5_{(8)}$

The multiplication is performed starting with the units digit (with index 0), from right to left, the process being repetitive with a number of $m+1$ iterations

At each iteration, the current digit A is multiplied by B, after they have been converted to decimal, and the carry digit from the previous iteration is added.

The calculated value provides 2 digits:

- the transport figure used in the next iteration is the quotient of dividing the calculated value by base;
- the positionally corresponding figure in number C is the remainder of the division of the calculated value by base.

$135246_8 * 5_{(8)} = ?_{(8)}$

$m = 6$.

$i = 0 : t_0 = 0$.

$135246_{(8)}$ · $5_{(8)}$

$(6)_8 \cdot 5_{(8)} + 0_{(8)} = 6 \cdot 5 + 0 = 30$.

$t_1 = [30/8] = 3$, $c_0' = 30 - 3*8 = 30 - 24 = 6$

$c_0 = 6_{(8)}$

$+22476_{(8)}$

$i = 1 : t_1 = 3$

$4_{(8)} \cdot 5_{(8)} + 3_{(8)} = 4 \cdot 5 + 3 = 23$

$t_2 = [23/8] = 2$ $c_1' = 23 - 2*8 = 23 - 16 = 7$

$c_1 = 7_{(8)}$

$i = 2 : t_2 = 2$.

$2_{(8)} \cdot 5_{(8)} + 2_{(8)} = 2 \cdot 5 + 2 = 12 \Rightarrow t_3 = [12/8] = 1$

$c_2' = 12 - 8 \cdot 1 = 12 - 8 = 4$

$c_2 = 4_{(8)}$

$i=3 : t_3 = 1.$

$5_{(8)} * 5_{(8)} + 1_{(8)} = 5 \cdot 5 + 1 = 26.$

$* \; t_4 = [26/8] = 3 \quad c'_3 = 26 - 8 \cdot 3 = 26 - 24 = 2$

$c_3 = 2_{(8)}$

$i = 4 : t_4 = 3$

$3_{(8)} \cdot 5_{(8)} + 3_{(8)} = 3 \cdot 5 + 3 = 18.$

$t_5 = [18/8] = 2 \quad c'_4 = 18 - 8 \cdot 2 = 18 - 16 = 2.$

$c_4 = 2_{(8)}$

$i = 5 : t_5 = 2$

$1_{(8)} \cdot 5_{(8)} + 2_{(8)} = 1 \cdot 5 + 2 = 7$

$t_6 = [7/8] = 0 \quad c'_5 = 7 - 8 \cdot 0 = 7.$

$c_5 = 7_{(8)}$

$\Rightarrow \boxed{n = 722\,476_{(8)}}$