class test

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Q2 Solution

Soln: Final version of the division algorithm support this condition.

Dividing 11010_2 by 0010 or 26_{10} by 2_{10}:

Iteration	Steps	Divisor	Remainder
0	Initial values	0010	000 11010
	Shift Rem left 1 bit	0010	0001 1010
1	2: Rem = Rem - Div	0010	(1)111 1010
	3b: Rem < 0 ⇒ +Div, SLR, R_0=0	0010	(0)011 0100
2	2: Rem = Rem - Div	0010	(0)001 0100
	3a: Rem ≥ 0 ⇒ SLR, R_0=1	0010	0010 1001
3	2: Rem = Rem - Div	0010	(0)000 1001
	3b: Rem ≥ 0 ⇒ SLR, R_0=1	0010	0001 0011
4	2: Rem = Rem - Div	0010	(1)111 0011
	3b: Rem < 0 ⇒ +Div, SLR, R_0=0	0010	0001 0011
	Shift left half of Rem right 1	0010	0000 0011

Q_1 solution

$-0.00855 = $ ~~$-0.0000 X$~~ $- 1.00 \times 2^{-7}$

$0.4575 = 1.11 \times 2^{-2}$

Step-1 (Adding the exponents)

$-7-2 = -9$

∴ new exponent $= -9$

considering bias $= -9 + 127$

$= 118$

Step-2: Multiply

$$\begin{array}{r} 1.00 \\ \times\ 1.11 \\ \hline 1.11 \end{array}$$

∴ 1.11×2^{-9}

Step-3: nonmalize

It is already nonmalized.

So, 1.11×2^{-9}

Step-4: Round the number

1.11×2^{-9}

Ans: