1.2.2 -0.3275072_{10} to IEEE binary

Step 1

(1) $0.3275072 \times 2 = 0.6550144$

(2) $0.6550144 \times 2 = 1.31002808$

(3) $0.31002808 \times 2 = 0.62005616$

(4) $0.62005616 \times 2 = 1.24011232$

(5) $0.24011232 \times 2 = 0.48022464$

(6) $0.48022464 \times 2 = 0.96044928$

(7) $0.96044928 \times 2 = 1.92089856$

(8) $0.92089856 \times 2 = 1.84179712$

(9) $0.84179712 \times 2 = 1.68359424$

(10) $0.68359424 \times 2 = 1.36718848$

(11) $0.36718848 \times 2 = 0.73437696$

(12) $0.73437696 \times 2 = 1.46875392$

(13) $0.46875396 \times 2 = 0.93750784$

(14) $0.93750784 \times 2 = 1.87501568$

(15) $0.87501568 \times 2 = 1.75003136$

(16) $0.75003136 \times 2 = 1.50006272$

(17) $0.50006272 \times 2 = 1.00012544$

(18) $0.00012544 \times 2 = 0.00025088$

(19) $0.00025808 \times 2 = 0.00050176$

(20) $0.00050176 \times 2 = 0.00100352$

(21) $0.00100352 \times 2 = 0.00200704$

(22) $0.00200704 \times 2 = 0.00401408$

(23) $0.00401408 \times 2 = 0.00802816$

(24) $0.00802816 \times 2 = 0.01605632$

(25) $0.01605632 \times 2 = 0.03211264$

Step 2: $0.0101001111010101111000000$

$= 1.010011110101011111000000 \times 2^{-2}$

Sign = 1 (−)

Exp = $-2 + 127 = 125$

$= 01111101$

M = $01001111010101111 00000000$

Side work

$125_{10} \rightarrow$ binary:

$125/2 = 62$ R=1
$62/2 = 31$ R=0
$31/2 = 15$ R=1
$15/2 = 7$ R=1
$7/2 = 3$ R=1
$3/2 = 1$ R=1
$1/2 = 0$ R=1
$0/2 = 0$ R=0

Sign (1)	Exponent (8 bits)	Mantissa (23 bits)
1	01111101	01001111010101111 00000000

↑
Answer