

task 1

Step 1: sign is 0 (positive)

Step 2: 100.25

	answ	rema
100	2	50
50	2	25
25	2	12
12	2	6
6	2	3
3	2	1
1	2	0

100 → 1100100

$$\begin{aligned}
 0.25 \times 2 &= 0.5 \rightarrow 0 \\
 0.5 \times 2 &= 1.0 \rightarrow 1 \\
 [0.25] &\rightarrow 0.01
 \end{aligned}$$

$$100.25 \rightarrow 1\underline{1}00100.01$$

Step 3: 1100100.01 → to get 1.XXX, I moved 6 to left
Now I have

sign exponent mantissa

sign = 0 (positive)

$$\text{exponent} \approx 127 + 6 = 133 \rightarrow \underline{\pm 0000101}$$

$$\text{mantissa (23 digits)} = \cancel{X}.10010001 :$$

$$= 10010010000000000000000$$

$$\text{exponent is } 6 + 127 = 133$$

	ans	r
133	2	66
66	2	33
33	2	16
16	2	8
8	2	4
4	2	2
2	2	1
1	2	0

Answer: 10000101

Final answer: 0 10000101 10010010000000000000000 mantissa

Task 3

Pseudo code

FUNCTION bitwise_OR (a, b)

Convert a and b to binary array

Make a-bin and b-bin same length by adding leading 0s

SET result-bin = empty string

FOR i = 0 to length - 1

IF a-bin[i] == '1' OR b-bin[i] == '1' Then

result-bin[i] = '1'

Else

result-bin[i] == '0'

End For

Convert bit array back to decimal

Return decimal result

End Function

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SET result-bin = empty string

FOR i = 0 to length - 1

IF a-bin[i] == '1' And b-bin[i] == '1' Then

result-bin[i] = '1'

Else

result-bin[i] == '0'

End For

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