Quiz

5.75

① 5|2 = 1 ↑
2|2 = 0 ↑
1|2 = 1 ↑

divide 5 by 2 keeping notice of the quotient and the remainds

101

write the reverse order from bottom to up

0.75 x 2 = 1 + 0.5 multiple by 2
0.5 x 2 = 1 + 0 and write the integ part out

101.11

63/64 = 0.984

0|2 = 0

divide the integer by 2, to qustion an remainder

0.984 x 2 = 1.968 multiply by 2 keep
0.968 x 2 = 1.936 integ and fractional
0.936 x 2 = 1.872 part
0.872 x 2 = 1.744
0.744 x 2 = 1.488
0.488 x 2 = 0.976
0.976 x 2 = 1.952
0.952 x 2 = 1.904
0.904 x 2 = 1.808
0.808 x 2 = 1.615

0.111110111

9.8125

9 | 2 = 1		9 dinded by 2 keep
4 | 2 = 0		notice of quotient
2 | 2 = 0		and remain
1 | 2 = 1		

1001 collect from bottom to top

0.8125 x 2 = 1.625 multiply by 2
0.625 x 2 = 1.25 notice the integer and
0.25 x 2 = 0.5 fractional part
0.5 x 2 = 1.0

1001.1101 collect the decimal from top to bottom

② 34.890625

34 | 2 = 0		0.890625 x 2	1.78125	= 1
17 | 2 = 1		0.78125 x 2	1.5625	= 1
8 | 2 = 0		0.5625 x 2	1.125	= 1
4 | 2 = 0		0.125 x 2	0.25	= 0
2 | 2 = 0		0.25 x 2	0.5	= 0
1 | 2 = 1		0.5 x 2	= 1	= 1

I) 34.890625 = 100010,111001

II) 1.00010111001×2^5

III Positive

Ex = 5 + 127 = 132

mantisa : 10000100

132	2 = 0
66	2 = 0
33	2 = 1
16	2 = 0
8	2 = 0
4	2 = 0
2	2 = 0
1	2 = 1

+	8 bit	23 bits
0	10000100	00010111001000...
Sign	Exponent	mantisa

find the binary value of the decimal using the step from previous question look for the sign of given value if positive 0 or negative 1

move the decimal point to the left side until the last 1 bit. the number of move represent the exponent then add to the Bias and will get the Exponent and convert it to binary and then called all the rest after the point will be mantisa

(3) 0 value is positive

01111011 Bias = 127

$= 2^6 + 2^5 + 2^4 + 2^3 + 2^1 + 2^0 = 123$

Get binary format $123 - 127 = -4$

$1.000\ 0000\ 0000\ 0000\ 0000\ 0000 \times 2^{-4}$

$0.0001 = \frac{1}{2^{-4}} = \frac{1}{16} = \boxed{0.0625}$

calculat the decimal number

4 normalize number are value close to
1 below
closest to 1 above, Exponent 0001 and on

and denormalize numbers are value
close number to zero exponent
are 0000