

Name : Jawad Khan
Roll-No : P19-0053
BCCS : (SA)
Date : 8/9/2021

—(Step)—

convert decimal to binary

2	100	number = 100.875
2	50 - 0	
2	25 - 0	
2	12 - 1	
2	6 - 0	
2	3 - 0	
	1 - 1	

$$(100)_{10} = (1100100)_2$$

for fraction part

$$0.875 \times 2 = 1.750$$

$$0.75 \times 2 = 1.5$$

$$0.5 \times 2 = 1$$

$$(0.875)_{10} = (0.111)_2$$

$$(100.875)_{10} = 1100100.111$$

— (Step 2) —

Finding exponent

$$1100100.111$$

$$\text{exponent} = 6$$

$$\begin{aligned} \text{Biased exponent} &= 6 + 127 \\ &= 133 \end{aligned}$$

2	133
2	66-1
2	33-0
2	16-1
2	8-0
2	4-0
2	2-0
1	0

$$(133)_{10} = (10000101)_2$$

— (step 3) —

Finding Mantissa

mantissa = 100100111000000000000000

0		10000101		1010011100000000000000
/		↓		↓
Sign		exponent		mantissa