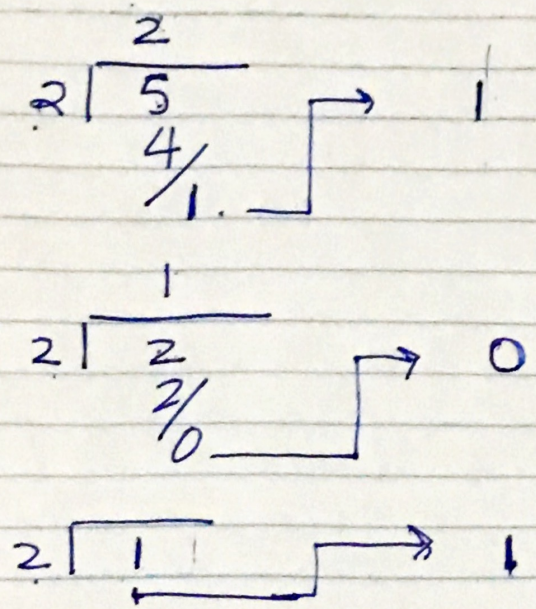
Floating point Representation : 5.375_{10}

Step 1: Convert decimal to Binary : 5.375_{10}

First we take integer part : 5



$5_{10} = 101_2$

Now we take Fraction : $.375_{10}$

$0.375 \times 2 = 0 + 0.75$
$0.75 \times 2 = 1 + 0.50$
$0.50 \times 2 = 1 + 0.0$

$0.375_{10} = .011_2$

$5.375_{10} = 101.011_2$

Step 1: $5.375_{10} = 101.011_2$

Step 2: Converting Binary to Sci Notation: 101.011_2

Scientific Notation Review

Convert 631.65_{10}

631.65_{10} $\xrightarrow{\text{Scientific Notation}}$ 6.3165×10^2

Convert Binary to Scientific Notation of 101.011_2

101.011_2 $\xrightarrow{\text{Scientific Notation}}$ 1.01011×2^2

Scientific Conversion of 101.011×2^0 is

$$1.01011 \times 2^2$$

Step2: Scientific Notation Conversion: 1.01011×2^2

1.01011×2^2

Step3: Add Biased Exponent

Biased offset = 7

$1.01011 \times 2^{2+7} = 1.01011 \times 2^9$

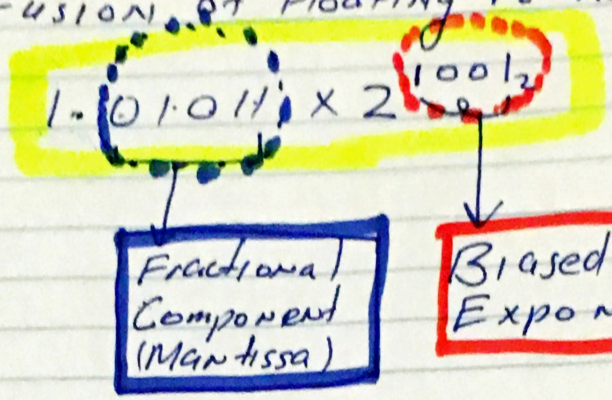
$= 1.01011 \times 2^{1001_2}$

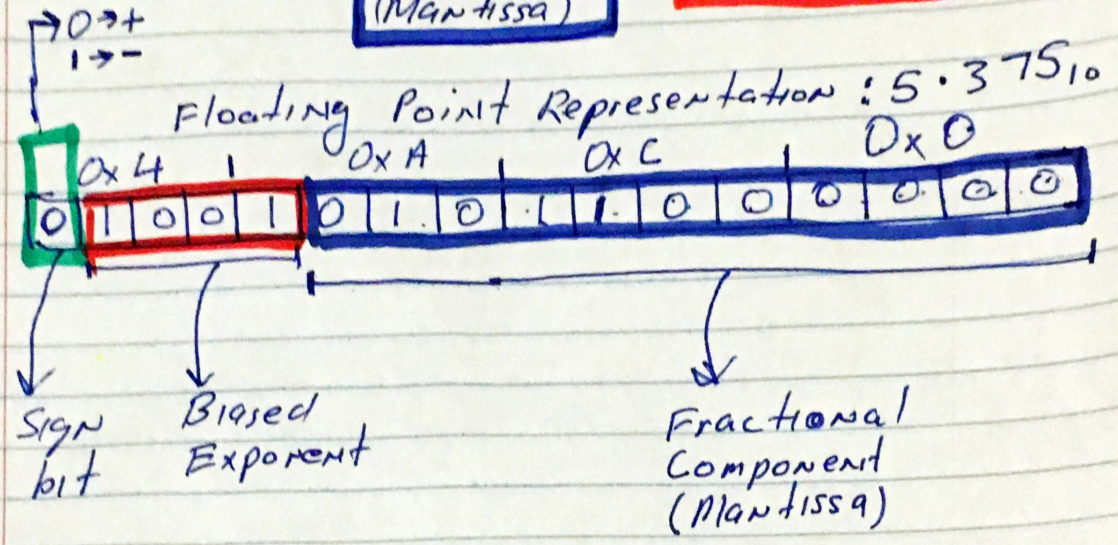
$9_{10} = 1001_2$

Step 2: Scientific Notation : $+1.01011 \times 2^{2}$

Step 3: Biased Exponent $= 9_{10} = 1001_2$

Step 4: Fusion of Floating Pt Representation.





Step 5: Convert to Hex : 5.375_{10}

0x 4ACO

$K = 2^{N-1} - 1 = 2^{4-1} - 1 = 2^{3} - 1 = 8 - 1 = 7$

N = # of bits used to store Biased offset