Detailed Float Calculation

-23.5 Next Step Start Over

1	Negative so sign bit is 1
10111	Convert whole number section to binary
0.1	Convert fraction section to binary
10111.1	Join the two together
4	How many spaces to move binary point
10000011	Add 127 to get Exponent
10000011	Convert Exponent to binary
1.01111	Adjust the mantissa
01111000000000000000000	Remove the leading 1

(23 base 10)

(.5 base 10 is ½ or .1 in binary)

(ignore the leading 1 because we always have a leading one digit

(131 base 10)

127 is the Basis meaning that the float can range from base 2 -127 to base 2 +127
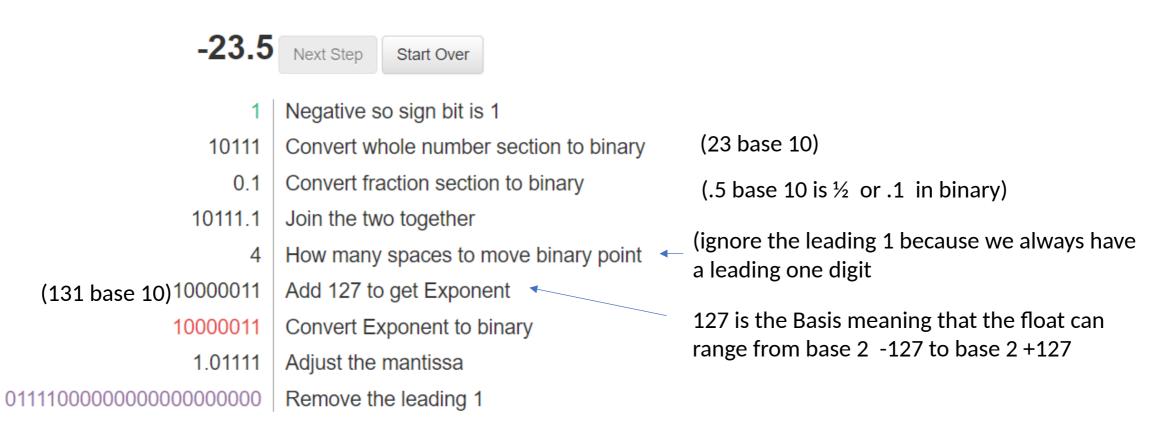
Result in Binary : **1   10000011   01111000000000000000000**

Floating Point Steps :

1. Starting Number :   -4.25

2. Binary format =   -1   4 .25   -1   100 .01

3. Combine   100.01

4. Digits to move decimal until leading 1 : 2   1 00.01

5. Exponent – Bias (127) =2 so Exponent is 129 10000001

6. Put sign, exponent and mantissa together:

    1 10000001 0001 000000000000000000000 (19 0)