2.875_{10}

To binary

$2 \div 2 = 1$ R0 $\quad .875 \times 2 = 1.75$

R1 $\quad .75 \times 2 = 1.5$

$.5 \times 2 = 1$

10.111_2

To octal

R2 $\quad .875 \times 8 = 7$

2.7_8

To hex

R2 $\quad .875 \times 16 = 14$

$2.E_{16}$

$.1796875_{10}$

$.1796875 \times 2 = 0.359375$

$.359375 \times 2 = 0.71875$

$.71875 \times 2 = 1.4375$

$.4375 \times 2 = 0.875$

$.875 \times 2 = 1.75$

$.75 \times 2 = 1.5$

$.5 \times 2 = 1$

$.0010111_2$

$.1796875 \times 8 = 1.4375$

$.4375 \times 8 = 3.5$

$.5 \times 8 = 4$

$.134_8$

$.1796875 \times 16 = 2.875$

$.1875 \times 16 = 14$

$.2E_{16}$

10.111

1.0111×2^1

$127 + 1 = 128 \Rightarrow 10000000$

8 bits — mantissa 23 bits

0						0	1	1	1

0100 0000 0011 1000 0000 0000 0000 0000

4 0 3 8 0 0 0 0

40380000_8

0000 couldn't fit last 4 0's

1.0111×2^{-3}

$127 + (-3) = 124 \Rightarrow 01111100$

0	01111100	01100000000000000000000

signed bit

3 E 3 8 0 0 0 0

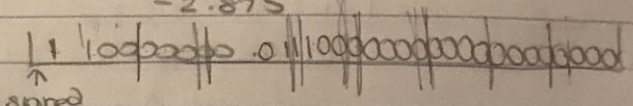
$3E380000_8$

b) 2.875

floating point

1.0111×2^1 $\quad 127 + 1 = 128$

-2.875



p. signed pt

$C0380000_8$

10.111_2

$-(10.111)_2$

01.000

01.000000

$+ \quad .0001$

01.000001

$01.000001_2 = -2.875$

$4 . 1_{16}$

.1796875

$.0010111_2$

$-(.0010111)_2$

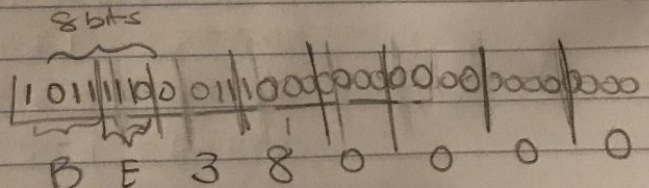
$.1101000$

$.1101000$

$+ \quad 1$

$1101\,0001$

$.D \quad 1$



I DID THIS WRONG

5999990 1

0101|1001|1001|1001|1001|1001|0000|0001

$1\times2^0+0\times2^1+0\times2^2+0\times2^3+0\times2^4+0\times2^5+0\times2^6+0\times2^7$
$+1\times2^8+0\times2^9+0\times2^{10}+1\times2^{11}+1\times2^{12}+0\times2^{13}+0\times2^{14}$
$+1\times2^{15}+1\times2^{16}+0\times2^{17}+0\times2^{18}+1\times2^{19}+1\times2^{20}+0\times2^{21}$
$+0\times2^{22}+1\times2^{23}+1\times2^{24}+0\times2^{25}+0\times2^{26}+1\times2^{27}+1\times2^{28}$
$+0\times2^{29}+0\times2^{30}+0\times2^{31}$

$1+1\times2^8+1\times2^{11}+1\times2^{12}+1\times2^{15}+1\times2^{16}+1\times2^{19}+1\times2^{20}$
$+1\times2^{23}+1\times2^{24}+1\times2^{27}+1\times2^{28}+1\times2^{30}$

1+256+2048+4096+32768+65536+524288+1048576
+8388608+16777216+134217728+268435456
+1073741824

= 1261580955 USED ONLINE CALC.

5999990 2

0101|1001|1001|1001|1001|1001|0000|0010

$0\times2^0+1\times2^1$

258 + ~~~ " "

= 1261580956

A6666FE

1010|0110|0110|0110|0110|0111|1111|1110

$0\times2^0+1\times2^1+1\times2^2+1\times2^3+1\times2^4+1\times2^5+1\times2^6+1\times2^7$
$+1\times2^8+1\times2^9+1\times2^{10}+0\times2^{11}+0\times2^{12}+1\times2^{13}+1\times2^{14}+0\times2^{15}$
$+0\times2^{16}+1\times2^{17}+1\times2^{18}+0\times2^{19}+0\times2^{20}+1\times2^{21}+1\times2^{22}+0\times2^{23}$
$+0\times2^{24}+1\times2^{25}+1\times2^{26}+0\times2^{27}+0\times2^{28}+1\times2^{29}+0\times2^{30}+1\times2^{31}$

$1\times2^1+2^2+2^3+2^4+2^5+2^6+2^7+2^8+2^9+2^{10}+2^{13}+2^{14}+2^{17}$
$+2^{18}+2^{21}+2^{22}+2^{25}+2^{26}+2^{29}+2^{31}$

54+64+128+256+512+1024+8192+16384+131072
+262144+2097152+4194304+33554432+67108864
+536870912+2147483648 = 2791729142