1. Fill in the blanks

|  |  |  |
| --- | --- | --- |
| **Hexadecimal** | **Decimal** | **Binary** |
| 0xf.8 | 15.5 | 1111.1000 |
| 0xc.a | 12.675 | 1100.1010 |
| 0x0.8 | 0.5 | 0.1000 |
| 0x1.4 | 1.250 | 1.0100 |
| 0x9.a | 9.625 | 1001.1010 |
| 0x4.e | 4.875 | 100.1110 |
| 0xd.0 | 13.000 | 1101.0000 |
| 0x1.2 | 1.125 | 1.0010 |
| 0x6.e | 6.875 | 110.1110 |
| 0x2.0 | 2.000 | 10.0000 |

S=sign, F=fraction, E=exponent

((-1)^S) \* F \* (2^(E-127))

IEEE-754 conversions

2. Convert 226.75 to Hex

226 = 11100010

.75 = .1100

11100010.1100 => 1.11000101100 7 digits

remove leading 1 so 11000101100 (fill rest with 0's)

7 ­­+ 127 = 134 so 10000110

0 10000110 11000101100000000000000

0100 0011 0110 0010 1100 0000 0000 0000

0x4362c

3. Convert 0xc37e6000 to Decimal

1100 0011 0111 1110 0110 0000 0000 0000

1 10000110 11111100110000000000

-1 \* (1 + x) \* 2^(134-127) where

x = .5 + .25 + .125 + .0625 + .03125 + .015625 + .001953125 + 0 + 0 + .0009765625 = .9873046875

so after formula = -254.375