

Your magic (32 bit) floating point number is 19.40625

This is the number that needs to be converted to (little endian) binary, and expressed in hexadecimal.

$$19.40625/2^4 = 1.212890625 - 1 = 0.212890625 \quad (1/8 + 1/16 + 1/64 + 1/128 + 1/512), 4 + 127 = 131 \quad (1000 \ 0011)$$

0100 0001 1001 1011 0100 0000 0000 0000      big endian

Hex: 419B4000

0000 0000 0100 0000 1001 1011 0100 0001      little endian

Hex: 00 40 9B 41

Your other magic floating point number is, in hex, 0x00809ec2

This is the number that needs to be converted to a (32 bit) floating point number.

Note that the hexadecimal printed above is in little-endian format!

00 80 9e c2      C2 E9 80 00      1100 0010 1110 1001 1000 0000 0000

1 10000101 11010011000000000000

1      negative sign

$$10000101 \quad (128 + 4 + 1 = 132 - 127 = 5) \quad 2^5 = 32$$

$$11010011000000000000 \quad (1/2 + 1/4 + 1/16 + 1/128 + 1/256 = 0.82421875 + 1 = 1.82421875)$$

$$-58.375 \quad (1.82421875 * 32)$$