

CSCI 4591: Computer Architecture
HW Assignment # 5

Due Date: March 7, 2021 @ 12:55 PM

1) Express the following numbers in IEEE 32-bit (single precision) floating point format:

1) $-5.5 = -101.1 \times 10^2$ 0|129

1 1000 0001 011000000000000000000000

calculator:

2) $0.0005 = 0.00000000001 = 1.0 \times 10^{-11}$ 0|116

0 0111 0110 000000000000000000000000 , also saw that the mantissa goes on

0 0111 0110 00000110001001001101111

3) $0.1 = 0.0001100110011001101 = 1.100110011001100 \times 10^{-4}$ 0|123

0 0111 1011 100110011001101000000000

could also be 0 0111 1011 10011001100110110011001 , since 0.1 in binary is 10110 indefinitely

2) The following numbers use the IEEE 32-bit (single precision) floating-point format. What is the equivalent decimal value?

3) 1 10000011 110000000000000000000000 = -1 | exp = 131 | fraction = .11 = $(1.75 \times 2^{131-127}) = -28$

4) 1 01111110 101000000000000000000000 = -1 | exp = 126 | fraction = .101 = $(1.625 \times 2^{126-127}) = -0.8125$

Create the text file using Microsoft Word, Open Office Writer, or a text editor. Name the document as follows:

FirstName_LastName_HW5

Rubric for Grading:

Description	Points
Question 1	30
Question 2	20
Total Points	50

