Université d'Ottawa
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University of Ottawa
Faculty of Engineering

School of Electrical Engineering
and Computer Science

COURSE: CEG2136

Computer Architecture I

SEMESTER: Fall 2016

Assignment 2

Q1. In a signed binary system of 8 bits (N=8):

a) Find the **2's complement representation** of the following signed numbers:
$(+ 63)_{10}$ and $(- 115)_{10}$.

b) Find the **2's complement** of the following signed numbers and give your results in decimal, too:
$(- 63)_{10}$ and $(+ 115)_{10}$

c) Perform the following arithmetic operations using the signed 2's complement representation and provide your results in decimal (including intermediary steps), as well:
1) $(+ 115)_{10} + (- 63)_{10}$
2) $(- 115)_{10} - (- 63)_{10}$

Q2.

a) Identify the decimal number which is represented next with 32-bit in the IEEE 754 standard: (1 10001011 11101000000000000000000) = $(?)_{10}$

b) Represent (221.390625) in the IEEE 754 standard with 32 bits.

Questions 3.1, 3.3 – 3.5, 3.8-3.10, 3.13, 3.16