- CPSC 275: Introduction to Computer Systems

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Fall 2025

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Homework 35

NOTE: You are not required to hand in the following exercises, but you are strongly encouraged to complete them to strengthen your understanding of the concepts covered in class.

1. Consider the 8-bit floating-point format described in Slide 15 of Lecture 35.
   A. Convert the decimal number 5.5 into this floating-point format.
   B. Convert the decimal number 0.375 into this floating-point format.
   C. Interpret the 8-bit binary representation `11000110` as a floating-point number and express its value in decimal.

2. Consider the bit pattern `001110100`. What value does it represent if it is interpreted as:
   A. a sign-magnitude integer?
   B. a one's complement integer?
   C. an unsigned two's complement integer?
   D. a signed two's complement integer?
   E. a 9-bit floating-point format with a 1-bit sign, a 3-bit exponent, and a 5-bit mantissa?

3. Repeat Exercise 2 with the bit pattern `101001000`.

- **Welcome: Sean**
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