Foundations of Information Systems

Winter Semester 2023–24, Exercise 4

For discussion on Wednesday, November 15, 2023

1. Find the 8-bit two's complement of $(67)_{10}$.

2. Which integer is represented by the bit pattern 10111010 interpreted as 8-bit two's complement representation?

3. Show that the two's complement of the two's complement of a bit pattern returns the original bit pattern.

4. Convert the following single-precision floating bit representation to decimal:

   1 10001010 11000010000000000000000

5. Adapt the computation of propagation of floating point error to the case of floating point division. You should find that floating point division has moderate growth of relative error for all numbers.

6. Does the associative law hold for floating point computations?