

Basics of Information Systems

Winter Semester 2022–23

For discussion on Wednesday, November 9, 2022

1. Show that the two's complement of the two's complement of a bit pattern returns the original bit pattern.
2. Convert the following rational numbers into binary:
 - (a) 1.5
 - (b) 0.40625
 - (c) 7.1875
3. Compute the fractional binary representation of the decimal fraction 0.1.

Note: You will find that 0.1 does not have a terminating fractional binary representation. Nonetheless, as a rational, its binary representation is eventually periodic.