Homework 3

ELEN 21/COEN 21
Instructor: Maria Kyrarini

1. Determine the decimal values of the following 2's complement numbers:
   (a) 1011100111
   (b) 1111111110
   (c) 0111011110

2. Prove that the XOR operation is associative, which means the following:

$$x \oplus (y \oplus z) \quad = \quad (x \oplus y) \oplus z$$

3. Perform the following operations involving eight-bit 2's complement numbers. Check your answers by converting to decimal sign-and-magnitude representation.

$$\begin{array}{r} 00110110 \\ + \; 01000101 \\ \hline \end{array} \qquad \begin{array}{r} 01110101 \\ + \; 11011110 \\ \hline \end{array} \qquad \begin{array}{r} 11011111 \\ + \; 10111000 \\ \hline \end{array}$$