Computer Science: An Overview

Homework 1

1. Flip-flop
   1. Both inputs 0  
      The output remains the same
   2. Both inputs 1  
      The output gets set to 0
   3. Upper input 0, lower input 1  
      The output gets set to 1
   4. Upper input 1, lower input 0  
      The output gets set to 0
2. -6 in 8 bits
   1. 10000110
   2. 11111001
   3. 11111010
   4. 01110011
3. Adding two’s complements
   1. 00101010 + 00001111 = 00111001
   2. 00011010 + 01010101 = 01101111
   3. 10001001 + 00110011 = 10111100
   4. 00010100 + 11110110 = 00001010
4. Encoding in 8-bit floating-point format
   1. = 01101010
   2. = 11011110
   3. = 01001101
   4. = 11101000
5. Adding 8-bit floating-point numbers
   1. 01111000 + 01101100 = 01111110
   2. 11011100 + 01101000 = 01001000
   3. 00101000 + 01011001 = 01011010
   4. 01011000 + 11011100 = 11001000