Due at the beginning of recitation R04 on Wednesday September 19.

1. What is \( \sim(0xA) \oplus 0xD \), where \( \sim \) is bitwise NOT and \( \oplus \) is bitwise XOR? Provide your result in both binary and hexadecimal.

   Result in binary (0b):____________________

   Result in hexadecimal (0x):____________________

2. What is 15 in 8-bit 2’s complement notation? What is –22 in 8-bit 2’s complement notation? Show how to compute 15–22 using 2’s complement addition. What is the result in 8-bit 2’s complement notation?

   15 in 8-bit 2’s complement notation (0b):____________________

   –22 in 8-bit 2’s complement notation (0b):____________________

   15–22 in 8-bit 2’s complement notation (show your work) (0b):____________________

3. You are given a Bluespec function `add4` that adds two 4-bit numbers with carry-in, shown below. Write a function `sub4` that uses `add4` to subtract two 4-bit numbers.

   ```plaintext
   function Bit#(4) add4(Bit#(4) a, Bit#(4) b, Bit#(1) c_in);
   function Bit#(4) sub4(Bit#(4) a, Bit#(4) b);
   // Fill in you code here
   return _________________________________;
   endfunction
   ```