

Integer Representation

1. Using 8-bits (which is 1 _____ [fill in the blank]), what's -25_{10} in:
 - a. Unsigned integer representation?

 - b. Signed integer representation?

 - c. Two's complement representation?
 - i. What's **25** in two's complement?

2. Without looking at your notes or any other materials, fill in the following table for an 8-bit binary integer:

Integer Representation	Minimum value (in base 10)	Maximum value (in base 10)
Unsigned		
Signed		
Two's Complement		

3. Why is signed integer representation flawed? (2 reasons)
 - a. How does two's complement remedy this?

1. Interpret the numbers given under “Integer in binary” according to the 3 different representations, then record the base-10 value it encodes:
(for example, 0100 is 4 in all 3 encodings.)

Integer in binary	Unsigned	Signed	Two's Complement
1010			
0111			
1111			
0000			
1000			

4. Calculate **0010 - 0111**:

a. What's the answer (in base 10) if this expression was in signed integer representation?

b. In two's complement?

c. How did overflow apply to what you did in parts a and b?