

E301B C Programming

Quizz 2: Bit manipulation

This assessment evaluates the following competencies:

- CP204 – write an integer and perform fundamental arithmetic operation with two's complement
- GP006 – use correctly bit manipulation operators

Four affirmations is given for the first assessed competency. For each of them, you have to decide whether it is true or false. To get a star for the competency, you must have the correct answer for the four affirmations.

CP204	True	False
In two's complement, $(3)_{10}$ is represented in a 8-bit <code>char</code> as 00000011.	<input type="checkbox"/>	<input type="checkbox"/>
In two's complement, $(-3)_{10}$ is represented in a 8-bit <code>char</code> as 11111100.	<input type="checkbox"/>	<input type="checkbox"/>
If the MSB of the result of the sum of two <code>char</code> variables whose two's complement representations are respectively <code>0X...X</code> and <code>1X...X</code> is 1, it means that the sum overflowed.	<input type="checkbox"/>	<input type="checkbox"/>
If two <code>char</code> variables <code>a</code> and <code>b</code> are both positive, the result of <code>a & b</code> is always positive.	<input type="checkbox"/>	<input type="checkbox"/>

For the second assessed competency (GP006), you have to write the representations of the results of the three following operations between two 8-bit `char` variables `a` and `b` whose two's complement representation are respectively 00001101 and 00001100: