Bitwise operators exercises.

STM32 Course Portfolio

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Exercises

1. Evaluate the following logical operations:

1. 4 & 7 = 0100 & 0111 = 0111 = 0100 = 4
2. 16 | 7 = 0001 0000 | 0000 0111 = 0001 0111 = 24
3. 2 & (~13) = ~(1101) = 0010 & 0010 = 0010 = 2
4. 5 ^ 8 = (0101) ^ (1000) = 1101 = 13
5. 7 >> 2 = (0111) >> (0010) = (0001) = 1 (Overflow)
6. 84 >> 4 = (0101 0100) >> (0100) = 0101 = 5 (Overflow)
7. 15 << 4 = (1111) >> 4 = 1111 0000 = 240
8. 4 & (2<<3) = (0010 << 3) = 0001 0000 & (0000 0100) = 0000 0000 = 0
9. 2 | (19 >> 1) = 0001 0011 >> 1 = 1001 | 0010 = 1011 = 11.
10. 0xFF & (0x13 << 0x2) = 1111 1111 & (0001 0011 << 0010) =
    0100 1100 & 1111 1111 = 0100 1100 = 0x4C = 76.

2. Convert the following numbers to Hexadecimal.

1. 1011 1100 = 0xBC
2. 1000 0001 1100 = 0x81C
3. 1000 0011 0011 1111 1010 = 0x833FA
4. 1111 1010 0001 = 0xFA1
5. 1111 1111 1111 1111 1101 1110 = 0xFFFFDE

3. Convert the following numbers to Binary:

1. 84 = 0101 0100
2. 0xFC15 = 1111 1101 0001 0101
3. 0x5487DA = 0101 0100 1000 0111 1110 1010
4. 298 = 0001 0010 1010
5. 0xA15CB4 = 1010 0001 0101 1101 1011 0100