

Homework 1

Number Conversion

Fill in the table below

Binary	Octal	Decimal	Hexadecimal
101 0101 0110			
	777		
			0x1c5
		2017	
	2017		

Operations

Note: You need to read the Chapter 2.1.9 of the book CSAPP before doing the below homework.

- 1) Given A and B with hexadecimal expression 0x7F and 0xBA respectively. Calculate the values of the following expressions. a) A & B
b) A | B
c) A ^ B
d) ~A | ~B
e) A && B
f) A || B
- 2) Design C expressions using bitwise (& | ~ ^) and logical (&& || !) operators, which return 1 under the specific conditions described below, otherwise return 0.
a) all bits of x are 1.
b) all bits of x are 0.
c) bits of x's least significant byte are 1.
d) bits of x's least significant byte are 0.
- 3) Design a C expression, which generates a word (32-bit) consisting of the lower 16 bits of x and the remaining bits of y. (Both x and y have 32 bits.)

For example, $x = 0x89ABCDEF$ and $y = 0x76543210$, it will generate $0x7654CDEF$