- CPSC 275: Introduction to Computer Systems

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Fall 2025

- Syllabus
- Schedule
- Resources
- Upload
- Solution

Homework 2

NOTE: You are not required to hand in the following exercises, but you are strongly encouraged to complete them to strengthen your understanding of the concepts covered in class.

1. Perform the following number conversions:
   A. `0x39A7F8` to binary
   B. Binary `1100100101111011` to hexadecimal
   C. `0xD5E4C` to binary
   D. Binary `10011011100111110110101` to hexadecimal

2. If `a = 01101001` and `b = 01010101`, both bit vectors, what is the value of each of the following expressions?
   A. `~a`
   B. `~b`
   C. `a & b`
   D. `a | b`
   E. `a ^ b`
   F. `a && b`
   G. `a || b`
   H. `!a || !b`
   I. `a && ~b`

3. Fill in the blank entries in the following table, giving the decimal and hexadecimal representations of different powers of 2:

n	2^n (Decimal)	2^n (Hexadecimal)
9	512	0x200
19	_____	_____
_____	16,384	_____
_____	_____	0x10000
17	_____	_____
_____	32	_____
_____	_____	0x80

4. A single byte can be represented by two hexadecimal digits. Fill in the missing entries in the following table, giving the decimal, binary, and hexadecimal values of different byte patterns:

Decimal	Binary	Hexadecimal
0	0000 0000	0x00
167	_____	_____
62	_____	_____
188	_____	_____
_____	0011 0111	_____
_____	1000 1000	_____
_____	1111 0011	_____
_____	_____	0x52
_____	_____	0xAC
_____	_____	0xE7

- **Welcome: Sean**
  - LogOut