DigiPen   CS   Vadim Surov   CS100A   Assignment #4

Signed Binary Numbers

Practice the signed-number conversions and arithmetic. Calculators are not allowed. Do all calculations on a sheet of paper.

Instruction

Read carefully and check all statements below you agree with or that are correct about your assignment submission.

✔ ☐ If something is not clear in this page I ask for help from my instructor during submission period.

✔ ☐ After submission I will get a tentative assessment based on my input, that may be changed later after re-evaluation by grader.

✔ ☐ My answers represent my own individual work.

✔ ☐ Cheating of any kind (copying someone else's work, allowing others to copy your work, collaborating, etc.) will not be tolerated and will be dealt with SEVERELY.

★ SM1   0 ☑

Convert decimal -27 into its 8-bit signed representation in Signed Magnitude.
10011011

★ SM2   0 ☑

Convert decimal 56 into its 8-bit signed representation in Signed Magnitude.
00111000

★ SM3   0 ☑

Convert decimal -101 into its 8-bit signed representation in Signed Magnitude.
11100101

★ SM4   0 ☑

Convert decimal 30 into its 8-bit signed representation in Signed Magnitude.
00011110

★ SM5   0 ☑

Convert decimal -62 into its 8-bit signed representation in Signed Magnitude.
10111110

★ OC1   0 ☑

Convert decimal 41 into its 8-bit signed representation in Ones' Complements.
00101001

★ OC2   0 ☑

Convert decimal -54 into its 8-bit signed representation in Ones' Complements.
11001001

★ OC3   0 ☑

Convert decimal 106 into its 8-bit signed representation in Ones' Complements.
01101010

★ OC4   0 ☑

Convert decimal -51 into its 8-bit signed representation in Ones' Complements.
11001100

OC5	0	☑

Convert decimal -119 into its 8-bit signed representation in Ones' Complements.

10001000

TC1	0	☑

Convert decimal 57 into its 8-bit signed representation in Two's Complements.

00111001

TC2	0	☑

Convert decimal -83 into its 8-bit signed representation in Two's Complements.

10101101

TC3	0	☑

Convert decimal 82 into its 8-bit signed representation in Two's Complements.

01010010

TC4	0	☑

Convert decimal -38 into its 8-bit signed representation in Two's Complements.

11011010

TC5	0	☑

Convert decimal -115 into its 8-bit signed representation in Two's Complements.

10001101

ADD1	0	☑

Add the following signed 10 bits numbers given in Two's Complement: 1110000110 and 0011010011.

Give the answers in decimal values.

89

ADD2	0	☑

Add the following signed 10 bits numbers given in Two's Complement: 1111110111 and 1111001010.

Give the answers in decimal values.

-63

ADD3	0	☑

Add the following signed 10 bits numbers given in Two's Complement: 1101101110 and 0001111011.

Give the answers in decimal values.

-23

ADD4	0	☑

Add the following signed 10 bits numbers given in Two's Complement: 1101000010 and 0010000101.

Give the answers in decimal values.

-57

ADD5	0	☑

Add the following signed 10 bits numbers given in Two's Complement: 1101001101 and 1111111111.

Give the answers in decimal values.

-180

Survey

- What is approximate number of hours you spent implementing this assignment?

- Indicate the specific portions of the assignment that gave you the most trouble