CSE 351 Two's Complement/Floating-Point Practice Worksheet

1 Exercises

1.1 Decimal to Two's Complement Binary

Convert the following decimal numbers to 8-bit two's complement binary. Record the result in binary and hex.

1.1.1 `-39`

1.1.2 `127`

1.1.3 `-69`

1.1.4 `104`

1.2 Two's Complement Math

Compute the following 8-bit two's complement sums. Note if the solution has carryout, overflow, or if the sum is correct.

1.2.1 `-39 + 92`

1.2.2 `127 + 1`

1.2.3 `104 + 45`

1.2.4 `-103 + -69 = -172`

1.3 Decimal to Floating-Point Binary

Convert the following decimal numbers to 32-bit floating-point binary numbers. Record the result in binary and hex.

1.3.1 `1313.3125`

1.3.2 `0.1015625`

1.4 Challenge: Floating-point Math

Compute the following floating-point sum:
`1313.3125 + 0.1015625`

Compute the following floating-point product:
`1313.3125 * 0.1015625`