Name: Date:

Integers and Bases Worksheet

Unsigned Binary

Convert each of these decimal numbers to 8-bit binary

54₁₀ 0₁₀

237₁₀ 255₁₀

Convert each of these binary numbers to unsigned decimal

1001 00112 0101 11002

1111 01102 0010 00012

Signed Magnitude Binary

Convert each of these decimal numbers to 8-bit signed magnitude binary

-13₁₀ 127₁₀

 -127_{10} -100_{10}

Grade:

Hexadecimal

Convert each of these binary numbers into hexadecimal

1100 10012

1111 1111₂

0001 10112

1010 00012

Convert each of these hexadecimal numbers into binary

0x001125BC

0x5401DE5B

0x491BFC24

0xDEADBEEF

Ones' Complement

Write the following in in 8-bit ones' complement representation

7310

 -0_{10}

 -10_{10}

 -124_{10}



Add the following 8-bit one's complement numbers

$$-12_{10} + 17_{10}$$

$$-24_{10} + 7_{10}$$

Twos' Complement

Write the following in 8-bit twos' complement representation

$$-54_{10}$$

$$-100_{10}$$

$$-127_{10}$$

Add the following 8-bit twos' complement numbers

$$54_{10} + -32_{10}$$

$$100_{10}\ -\ 86_{10}$$