00.exe   Exercises for Chapter 00

Consider the binary numbers of Fig. exe.1.

0100 1011
1001 1000
0001 0001
1111 0110

Figure exe.1: four 8-bit binary numbers.

Unsigned binary

In Exercise 00., interpret these values as unsigned binary numbers.

Exercise 00.1

Convert the binary numbers of Fig. exe.1 to octal.

Exercise 00.2

Convert the binary numbers of Fig. exe.1 to hexadecimal.

Exercise 00.3

Convert the binary numbers of Fig. exe.1 to decimal.

Exercise 00.4

As a check on your calculations, convert the octal numbers from Exercise 00. to decimal.

Exercise 00.5

As a check on your calculations, convert the hexadecimal numbers from Exercise 00. to decimal.

Exercise 00.6

As a check on your calculations, convert the decimal numbers from Exercise 00. to octal.

Exercise 00.7

As a check on your calculations, convert the decimal numbers from Exercise 00. to hexadecimal.

Exercise 00.8

Add the first and second binary numbers of Fig. exe.1. Convert the sum to decimal, and compare to the sum of the decimal numbers obtained in Exercise 00..

Exercise 00.9

Add the third and fourth binary numbers of Fig. exe.1. Convert the sum to decimal, and compare to the sum of the decimal numbers obtained in Exercise 00..

Signed binary

In Exercise 00. interpret the same four bytes from Fig. exe.1 as signed binary numbers expressed in 8-bit, two's complement.

Exercise 00.10

Determine the decimal equivalents of each (signed) binary number of Fig. exe.1.

Exercise 00.11

Add the first and second (signed) binary numbers of Fig. exe.1. Convert the sum to decimal, and compare to the sum of the decimal numbers obtained in Exercise 00..

Exercise 00.12

Add the third and fourth (signed) binary
numbers of Fig. exe.1. Convert the sum to
decimal, and compare to the sum of the decimal
numbers obtained in Exercise 00..