

Homework Assignment No. 8

Show all of your work on scratch paper, label your answers, and you MAY use a calculator.
This assignment is due Monday, April 4th.

Problem 1 Convert the given number to the specified base.

a 316_{10} to base 2

b $0xaf12b$ to base 10

c 10010101_2 to base 10

d $5b_{16}$ to base 2. (Hint: Because $16 = 2^4$ there is an easy way to do this that I hinted about in class; see if you can figure it out.)

Problem 2

a How many binary digits will you need to make a code where each letter of the alphabet (just consider the 26 lowercase letters, nothing more) is represented by a binary number?

b Come up with an encoding scheme that does this and write down the code table for it.

c Write the word "dog" using your encoding scheme, making sure to pad each number representation of the letters to the maximum number of digits used.

Problem 3 Find the Hamming distance between the binary strings 1001010110 and 1000100011.