Sheet #4 Data Representation

Q1. Perform the operations in the following table. Operands Am and B are in unsigned number representation form. The operation should be carried out in the base of the operand A. The result should be

	A	B	Operation	Result
a.	(101010)2	(1101100)2	A+B = (..)2	
b.	(101010)2	(1101100)2	A-B = (..)16	
c.	(1101100)2	(101010)6	A+B = (..)2	
d.	(12EF)16	(101010)16	A+B = (..)16	
e.	(1100)2	(12EF)16	A XOR B = (..)16	

Q2. Consider a six-bit unsigned number with a decimal point in its center.
 a. What is the smallest positive number that can be represented?
 b. How many different binary values can be represented?
 c. What is the range of numbers that can be represented?

Q3. An image contains 160 x 120 pixels and has a color depth of 65,536 colors. Calculate the size, in Kbytes, of its image file.

Q4. Calculate the file size, in KB, of a 10-minutes true-color video at a frame rate of 10 fps and an image size of 100 x 100 pixels, The stereo audio signal of the file is sampled at 11.025-KHz?