HW1

1. (36%) Convert the following numbers (all unsigned) from the given base to other three bases listed in the table (to the 4th digit after radix point):

Decimal	Binary	Octal	Hexadecimal
513.27	**?**	**?**	**?**
?	**1110.101**	**?**	**?**
?	**?**	**34.27**	**?**
?	**?**	**?**	**9F.D3**

2. (10%) Convert decimal +27 and +95 to binary, using the signed-2's-complement representation and enough digits to accommodate the numbers, Then, perform the binary equivalent of (+27)+(-95) and (-27)+(-95) using addition. Convert the answers back to decimal and verify that they are correct.
3. (12%) Perform on the given **unsigned binary numbers** using the 2's complement of the subtrahend Where the result should be negative, find its 2's complement and affix a minus sign. (a) 1101 – 0111, (b) 11011 – 1101, (c) 10101 – 1111001.
4. (14%) Write the word "Digital" in ASCII using an eight-bit code including the space. Treat the rightmost bit of each character as a parity bit. Each 8-bit code should have even parity.
5. (8%) For an 8-bit sequence is 0101 1000. What is its content if it represents (a) two decimal digits in BCD? (b) two decimal number in the Excess-3 code? (c) an 8-bit unsigned number? (d) an 8-bit signed number?
6. (20%) Find the Gray code sequence of 12 code words in a group.

