Number Systems

**1.1 Number Systems**

1. What is another name for the base-10 number system?
2. To make reading and writing large numbers easier we use \_\_\_positional\_\_\_\_\_ notation.
3. Convert the following numbers from binary to decimal.
   1. 101 5 b. 1011 11
   2. 10001 17 d. 11110 30
4. List the numerals that make up the octal number system.  
   0, 1,2,3,4,5,6,7
5. Convert the following numbers from octal to decimal.
   1. 10 8 b. 17 15
   2. 54 44 d. 103 67
6. List the numerals that make up the hexadecimal (hex) number system.

0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F

1. Convert the following numbers from hex to decimal.
   1. B 11 b. 10 16

* 1. 2A 42 d. 61 97

**1.2 Number Conversion**

1. Convert the following numbers from binary to decimal.
   1. 101101 35 b. 10001000 136

1. Convert the following binary numbers to octal.
   1. 101001 51 b. 111001101 715
2. Convert the following binary numbers to hex.
   1. 10010011 93 b. 100100111111 93F
3. Convert the following decimal numbers to binary using ladder technique.
   1. 32 100000 b. 247 11110111
4. Convert the following decimal numbers to binary using positional notation technique.
   1. 29 11101 b. 258 100000010
5. Convert the following octal numbers to binary.
   1. 30 011000 b. 752 111101010
6. Convert the following hexadecimal numbers to binary.
7. D3 11010011 b. 7A1 11110100001