

## Homework Assignment

### Number Systems - Base Conversion

Developing the skills for converting between the number systems used in networking is extremely important. Complete the following table by converting the given value to the other number systems.

	Decimal	Hexadecimal	Binary
1	23		
2	191		
3	278		
4	127.0.0.1		
5	10.50.148.91		
6		19	
7		3F	
8		0A-CE	
9		BE-AD	
10		87-C3-5E	
11			1011100
12			100111100
13			0010-1101
14			10101010-01010110-10101101
15			11000000.10101000.01100100.00011011

### Binary Coding – Encoding/Decoding Information from Binary Data

Understanding coding methods applied to a given stream of binary data is critical to accurate interpretation of the information represented. The following table applies five different coding methods to an identical sequence of eight bits. Apply the rule(s) described by the coding method to produce the decoded information.

	Encoded	Coding Method	Unit	Decoded
1	0110 0011	Decimal Number <i>value</i>	8 bit	
2	0110 0011	ASCII Character <i>symbol</i>	7 bit	
3	0110 0011	Hexadecimal Number <i>value</i>	8 bit	
4	0110 0011	Decimal Number <i>value</i> result of arithmetic operation on Decimal Number <i>values</i> given for base (l) and exponent (r)	4 bit	
5	0110 0011	Text <i>reference labels</i> identified by Decimal Number <i>values</i> encountered in first octet of an IP Datagram	4 bit	