255
0
192
168
145
8
247
1001 0101
1100 0000
21
240
127
80
9
89
129
0101 1001
1111 0000
0111 1111
0101
0110 0001
97
64
33
01
01 0001
142
168
10
25
216
147
170
154
1010 1010
1010
84
202
123
1100 1010
1100
10 0001
89
0101 1001

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	168	156	174	22
Ip Address Binary	1010 1000	1001 1100	1010 1110	0001 0110
Subnet Mask	**255**	**255**	**255**	**0**
Subnet Mask Binary	**1111 1111**	**1111 1111**	**1111 1111**	**0000 0000**
Network ID	168	156	174	
Network ID Binary	1010 1000	1001 1100	1010 1110	
Host ID				22
Host ID Binary				0001 0110
	Network	**Network**	**Network**	**Host**

The entire octet is either network or host. SM is 255 or 0

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	122		174	22
Ip Address Binary	0001 0110	1001 1100	1010 1110	0001 0110
Subnet Mask	255	192	0	0
Subnet Mask Binary	1111 1111	1100 0000	0000 0000	0000 0000
Network ID	122			
Network ID Binary	0001 0110	10		
Host ID			174	22
Host ID Binary		01 1100	1010 1110	0001 0110

Network Host

CIDR = /10

One octet is split between network and host. SM is NOT 0 or 255

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	122	156	174	22
Ip Address Binary	0001 0110	1001 1100	1010 1110	0001 0110
Subnet Mask	255	192	0	0
Subnet Mask Binary	1111 1111	1100 0000	0000 0000	0000 0000
Network ID	122	128		
Network ID Binary	0001 0110	10		
Host ID		28	174	22
Host ID Binary		01 1100	1010 1110	0001 0110

Network Host

CIDR = /10

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	142	17	65	48
Ip Address Binary	10001110	10001	1000001	110000
Subnet Mask	255	255	255	0
Subnet Mask Binary			1111 1111	
Network ID	142	17	65	0
Network ID Binary				
Host ID				48
Host ID Binary				

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	168	145	8	247
Ip Address Binary				
Subnet Mask	255	255	255	0
Subnet Mask Binary				
Network ID	168	145	8	
Network ID Binary				
Host ID				247
Host ID Binary				

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	212	186	47	149
Ip Address Binary				1001 0101
Subnet Mask	255	255	255	192
Subnet Mask Binary				1100 0000
Network ID	212	186	47	128
Network ID Binary				10
Host ID				21
Host ID Binary				01 0101

Notice that there are 2 bits in the Network ID. What does that mean the subnet mask has to be?

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	192	127	89	129
Ip Address Binary			0101 1001	
Subnet Mask	255	255	240	0
Subnet Mask Binary				
Network ID	192	127	80	
Network ID Binary	1100 0000	0111 1111	0101	
Host ID			9	
Host ID Binary			1001	1000 0001

Remember these are the 4 HIGH order bits of the octet

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	192	168	97	142
Ip Address Binary			0110 0001	
Subnet Mask			192	
Subnet Mask Binary			1100 0000	
Network ID	192	168	64	
Network ID Binary			01	**Looking at the subnet mask in binary how may bits go here?**
Host ID			33	142 **Looking at the subnet mask in binary how may bits go here? Remember to put a space between the nibbles**
Host ID Binary			10 0001	

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	10	10	25	216
Ip Address Binary				
Subnet Mask	255	0	0	0
Subnet Mask Binary	1111 1111			
Network ID	10			
Network ID Binary				
Host ID		10	25	216
Host ID Binary				

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	147	147	170	154
Ip Address Binary			1010 1010	
Subnet Mask	255	255	240	0
Subnet Mask Binary			1111 0000	
Network ID	147	147	160	0
Network ID Binary			1010	
Host ID			10	154
Host ID Binary			1010	

	1st Octet	2nd Octet	3rd Octet	4th Octet
Ip Address	84	154	202	123
Ip Address Binary			1100 1010	
Subnet Mask	255	255	240	0
Subnet Mask Binary			1111 0000	
Network ID	84	154	192	
Network ID Binary			1100 0000	
Host ID			10	123
Host ID Binary			1010	

Sheet 3

	Oct 1	Oct 2	Oct 3	Oct 4
Subnet Mask	255	255	255	0

Sheet 4

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	168	145	8	247

Sheet 5

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	212	186	47	149
Ip Address Binary				1001 0101
Subnet Mask	255	255	255	192
Subnet Mask Binary				1100 0000
Network ID	212	186	47	128
Network ID Binary				10
Host ID				21
Host ID Binary				01 0101

Sheet 6

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	192	127	89	129
Ip Address Binary			0101 1001	
Subnet Mask	255	255	240	0
Subnet Mask Binary			1111 0000	
Network ID	192	127	80	
Network ID Binary	1100 0000	0111 1111	0101	
Host ID			9	129
Host ID Binary			1001	1000 0001

Sheet 7

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	192	168	97	142
Ip Address Binary			0110 0001	
Subnet Mask			192	
Subnet Mask Binary			1100 0000	
Network ID	192	168	64	
Network ID Binary			01	
Host ID			33	142
Host ID Binary			10 0001	

Sheet 8

	Oct 1	Oct 2	Oct 3	Oct 4
Subnet Mask	255	0	0	0
Subnet Mask Binary	1111 1111			
Network ID	10			
Network ID Binary				
Host ID		10	25	216

Sheet 9

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	147	147	170	154
Ip Address Binary			1010 1010	
Subnet Mask	255	255	240	0
Subnet Mask Binary			1111	
Network ID	147	147	160	0
Network ID Binary			1010	
Host ID			10	154
Host ID Binary			1010	

Sheet 10

	Oct 1	Oct 2	Oct 3	Oct 4
Ip Address	84	154	202	123
Ip Address Binary			1100 1010	
Subnet Mask	255	255	240	0
Subnet Mask Binary			1111	
Network ID	84	154	192	
Network ID Binary			1100	
Host ID			10	123
Host ID Binary			1010	

	IP1	IP2	IP3	IP4	IPB1	IPB2	IPB3	IPb4	SM1	SM2	SM3	SM4	SMB1	SMB2	SMB3	SMB4	N1	N2	N3	N4	NB1	NB2	NB3	NB4	H1	H2	H3	H4	HB1	HB2	HB3	HB4
Sheet3									255	255	255	0																				
Sheet3 Key									255	255	255	0																				
Sheet4	168	145	8	247																												
Sheet 4 Key	168	145	8	247																												
Sheet5								1001 0101	255	255	255	192				1100 0000												21				
Sheet 5 Key								1001 0101	255	255	255	192				1100 0000												21				
Sheet6	192	127	89	129			0101 1001		255	255	240	0					192	127	80								5	0				
Sheet6 Key	192	127	185	129			0101 1001		255	255	240	0					192	127	180								5	129				
Sheet7							0110 0001				192												01				33	142			10 0001	
Sheet7 Key							0110 0001				192												01				33	142			10 0001	
Sheet8									255		0	0														10	25	216				
Sheet8 Key									255		0	0														10	25	216				
Sheet9	147	147	170	154			1010 1010								1111 0000								1010									
Sheet9 Key	147	147	170	154			1010 1010								1111								1010									
Sheet10	84	154	202	123			1100 1010								1111 0000						1100 0000										1010	
Sheet10 Key	84	154	202	123			1100 1010								1111						1100										1010	