BINARY TO DECIMAL CONVERSION

- 11111111 = 255
- 1100101 = 197

DECIMAL TO BINARY CONVERSION

- 123 = 01111011
- 50 = 00110010

ADDRESS CLASS IDENTIFICATION

Address	Class
10.250.1.1	A
150.10.15.0	B
192.14.2.0	C
148.17.9.1	B
193.42.1.1	C
126.8.156.0	A
220.200.23.1	C
230.230.45.58	C
177.100.18.4	B
119.18.45.0	A
249.240.80.78	C
199.155.77.56	C
117.89.56.45	A
215.45.45.0	C
199.200.15.0	C
95.0.21.90	A
33.0.0.0	A
158.98.80.0	B

219.21.56.0 C

Network & Host Identification

Colour the host portion:	Colour the network portion:
10.15.123.50	177.100.18.4
171.2.199.31	119.18.45.0
198.125.87.177	209.240.80.78
223.250.200.222	199.155.77.56
17.45.222.45	117.89.56.45
126.201.54.231	215.45.45.0
191.41.35.112	192.200.15.0
155.25.169.227	95.0.21.90
192.15.155.2	33.0.0.0
123.102.45.254	158.98.80.0
148.17.9.155	217.21.56.0
100.25.1.1	10.250.1.1
195.0.21.98	150.10.15.0
25.250.135.46	192.14.2.0
171.102.77.77	148.17.9.1
55.250.5.5	193.42.1.1
218.155.230.14	126.8.156.0
10.250.1.1	220.200.23.1

Network Addresses

Using the IP address and subnet mask shown write out the network address:

188.10.18.2
255.255.0.0 188.10.0.0

10.10.48.80
255.255.255.0 10.10.48.0

192.149.24.191
255.255.255.0 192.149.24.0

150.203.23.19
255.255.0.0 150.203.0.0

10.10.10.10
255.0.0.0 10.0.0.0

186.13.23.110
255.255.255.0 186.13.23.110

223.69.230.250
255.255.0.0 223.69.0.0

200.120.135.15
255.255.255.0 200.120.135.0

27.125.200.151
255.0.0.0 27.0.0.0

199.20.150.35
255.255.255.0 199.20.150.0

191.55.165.135
255.255.255.0 191.55.165.0

28.212.250.254
255.255.0.0 28.212.0.0

Host Addresses

Using the IP address and subnet mask shown write out the host address:

188.10.18.2 **255.255.0.0**	0.0.18.2
10.10.48.80 **255.255.255.0**	0.0.0.80
222.49.49.11 **255.255.255.0**	0.0.0.11
128.23.230.19 **255.255.0.0**	0.0.230.19
10.10.10.10 **255.0.0.0**	0.10.10.10
200.113.123.11 **255.255.255.0**	0.0.0.11
223.169.23.20 **255.255.0.0**	0.0.23.20
203.20.35.215 **255.255.255.0**	0.0.0.215
117.15.2.51 **255.0.0.0**	0.15.2.51
199.120.15.135 **255.255.255.0**	0.0.0.135
191.55.165.135 **255.255.255.0**	0.0.0135
48.21.25.54 **255.255.0.0**	0.025.54

Default Subnet Masks

Write the correct default subnet mask for each of the following addresses:

177.100.18.4 _____ 255.255.0.0

119.18.45.0 _____ 255.0.0.0

191.249.234.191 _____ 255.255.0.0

223.23.223.109 —---------- 255.255.255.0

10.10.250.1 —---------- 255.0.0.0

126.123.23.1 —---------- 255.0.0.0

223.69.230.250 —---------- 255.255.255.0

192.12.35.105 —---------- 255.255.0.0

77.251.200.51 —---------- 255.0.0.0

189.210.50.1 —---------- 255.255.0.0

88.45.65.35 —---------- 255.0.0.0

128.212.250.254 —---------- 255.255.0.0

193.100.77.83 —---------- 255.255.255.0

125.125.250.1 —---------- 255.0.0.0

1.1.10.50 —---------- 255.0.0.0

220.90.130.45 —---------- 255.255.255.0

134.125.34.9 —---------- 255.255.0.0

95.250.91.99 —---------- 255.0.0.0

Custom Subnet Masks

TABLE OF REFFERENCE FOR ONE OCTET

This represents the last 8 bits of our IP address, that is, the 4th octet of a given network address.	8	7	6	5	4	3	2	1
# of host	256	128	64	32	16	8	4	2
# of bit to borrow starting from the left	1	2	3	4	5	6	7	8
# of subnet to borrow always start from the left	2	4	8	16	32	64	128	256

Problem 4

Number of needed subnets 6

Number of needed usable hosts 30

Network Address 210.100.56.0

Address class : C

Default subnet mask: 255.255.255.0

Custom subnet mask: 255.255.255.224

Total number of subnets: 8

Total number of host addresses: 32

Number of usable addresses: 30

Number of bits borrowed: 3

Problem 5

Number of needed subnets 6

Number of needed usable hosts 30

Network Address 195.85.8.0

Address class: C

Default subnet mask: 255.255.255.0

Custom subnet mask: 255.255.255.224

Total number of subnets: 8

Total number of host addresses: 32

Number of usable addresses: 30

Number of bits borrowed: 3

TABLE OF REFERENCE FOR 2 OCTET

BITS	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
# OF HOST	65,536	32,768	16,384	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2
# of subnet	2	4	8	16	32	64	128	256	512	1024	2048	4096	8192	16384	32768	65536

Problem 9

Number of needed subnets 60

Number of needed usable hosts 1,000

Network Address 128.77.0.0

Address class: B

Default subnet mask: 255.255.0.0

Custom subnet mask: 255.255.252.0

Total number of subnets: 64

Total number of host addresses: 1024

Number of usable addresses: 1022

Number of bits borrowed: 6

Problem 10

Number of needed usable hosts 60

Network Address 198.100.10.0

Address class: C

Default subnet mask: 255.255.255.0

Custom subnet mask: 255.255.255.192

Total number of subnets: 4

Total number of host addresses: 64

Number of usable addresses: 62

Number of bits borrowed: 6

Problem 11

Number of needed subnets 250

Network Address 101.0.0.0

Address class: A

Default subnet mask: 255.0.0.0

Custom subnet mask: 255.255.0.0

Total number of subnets: 256

Total number of host addresses: 65536

Number of usable addresses: 65534

Number of bits borrowed: 8

Problem 3

Number of needed subnets 2

Network Address 195.223.50.0

Address class: C

Default subnet mask: 255.255.255.0

Custom subnet mask: 255.255.255.128

Total number of subnets: 2

Total number of host addresses: 128

Number of usable addresses: 126

Number of bits borrowed: 1

What is the 3rd subnet range? **There is no 3rd subnet range**

What is the subnet number for the 2nd subnet? **195.223.50.128**

What is the subnet broadcast address for the 1st subnet? **195.223.50.127**

What are the assignable addresses for the 3rd Subnet? **Doesn't exit**

Problem 4

Number of needed subnets 750

Network Address 190.35.0.0

Address class: B

Default subnet mask: 255.255.0.0

Custom subnet mask: 255.255.252.0

Total number of subnets: 1024

Total number of host addresses: 1024

Number of usable addresses: 1022

Number of bits borrowed: 10

What is the 15th subnet range? 190.35.14.0 to 190.35.15.255

What is the subnet number for the 13th subnet? 12288

What is the subnet broadcast address for the 10th subnet? 190.35.10.255

What are the assignable addresses for the 6th subnet? 190.35.5.1 to 190.35.6.254