IP Addressing and Subnetting

Workbook

Version 2.0

11111110

10010101

00011011

10000110

11010011

Student Name:

IP Address Classes

Class A   1 – 127   (Network 127 is reserved for loopback and internal testing)
Leading bit pattern   0   00000000.00000000.00000000.00000000
Network . Host . Host . Host

Class B   128 – 191   Leading bit pattern   10   10000000.00000000.00000000.00000000
Network . Network . Host . Host

Class C   192 – 223   Leading bit pattern   110   11000000.00000000.00000000.00000000
Network . Network . Network . Host

Class D   224 – 239   (Reserved for multicast)

Class E   240 – 255   (Reserved for experimental, used for research)

Private Address Space

Class A   10.0.0.0 to 10.255.255.255

Class B   172.16.0.0 to 172.31.255.255

Class C   192.168.0.0 to 192.168.255.255

Default Subnet Masks

Class A   255.0.0.0

Class B   255.255.0.0

Class C   255.255.255.0

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Workbooks included in the series:

IP Addressing and Subnetting Workbooks
ACLs - Access Lists Workbooks
VLSM Variable-Length Subnet Mask Workbooks

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Inside Cover

Binary To Decimal Conversion

128	64	32	16	8	4	2	1	Answers	Scratch Area
1	0	0	1	0	0	1	0	146	128 64
0	1	1	1	0	1	1	1	119	16 32
1	1	1	1	1	1	1	1		2 16
1	1	0	0	0	1	0	1		146 4
1	1	1	1	0	1	1	0		2
0	0	0	1	0	0	1	1		1
1	0	0	0	0	0	0	1		119
0	0	1	1	0	0	0	1		
0	1	1	1	1	0	0	0		
1	1	1	1	0	0	0	0		
0	0	1	1	1	0	1	1		
0	0	0	0	0	1	1	1		

	Answers
00011011	
10101010	
01101111	
11111000	
00100000	
01010101	
00111110	
00000011	
11101101	
11000000	

Decimal To Binary Conversion
Use all 8 bits for each problem

128	64	32	16	8	4	2	1	= 255
1	1	1	0	1	1	1	0	238
0	0	1	0	0	0	1	0	34
								123
								50
								255
								200
								10
								138
								1
								13
								250
								107
								224
								114
								192
								172
								100
								119
								57
								98
								179
								2

Scratch Area

```
238        34
-128      -32
 110        2
 -64       -2
  46        0
 -32
  14
  -8
   6
  -4
   2
  -2
   0
```

Address Class Identification

Address	Class
10.250.1.1	_A_
150.10.15.0	_B_
192.14.2.0	_____
148.17.9.1	_____
193.42.1.1	_____
126.8.156.0	_____
220.200.23.1	_____
230.230.45.58	_____
177.100.18.4	_____
119.18.45.0	_____
249.240.80.78	_____
199.155.77.56	_____
117.89.56.45	_____
215.45.45.0	_____
199.200.15.0	_____
95.0.21.90	_____
33.0.0.0	_____
158.98.80.0	_____
219.21.56.0	_____

Network & Host Identification

Circle the network portion of these addresses:	Circle the host portion of these addresses:
(177.100.)18.4	10.(15.123.50)
(119.)18.45.0	171.2.(199.31)
209.240.80.78	198.125.87.177
199.155.77.56	223.250.200.222
117.89.56.45	17.45.222.45
215.45.45.0	126.201.54.231
192.200.15.0	191.41.35.112
95.0.21.90	155.25.169.227
33.0.0.0	192.15.155.2
158.98.80.0	123.102.45.254
217.21.56.0	148.17.9.155
10.250.1.1	100.25.1.1
150.10.15.0	195.0.21.98
192.14.2.0	25.250.135.46
148.17.9.1	171.102.77.77
193.42.1.1	55.250.5.5
126.8.156.0	218.155.230.14
220.200.23.1	10.250.1.1

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

_____

150.203.23.19
255.255.0.0

_____

10.10.10.10
255.0.0.0

_____

186.13.23.110
255.255.255.0

_____

223.69.230.250
255.255.0.0

_____

200.120.135.15
255.255.255.0

_____

27.125.200.151
255.0.0.0

_____

199.20.150.35
255.255.255.0

_____

191.55.165.135
255.255.255.0

_____

28.212.250.254
255.255.0.0

_____

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
_____

128.23.230.19
255.255.0.0
_____

10.10.10.10
255.0.0.0
_____

200.113.123.11
255.255.255.0
_____

223.169.23.20
255.255.0.0
_____

203.20.35.215
255.255.255.0
_____

117.15.2.51
255.0.0.0
_____

199.120.15.135
255.255.255.0
_____

191.55.165.135
255.255.255.0
_____

48.21.25.54
255.255.0.0
_____

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   _____

223.23.223.109   _____

10.10.250.1   _____

126.123.23.1   _____

223.69.230.250   _____

192.12.35.105   _____

77.251.200.51   _____

189.210.50.1   _____

88.45.65.35   _____

128.212.250.254   _____

193.100.77.83   _____

125.125.250.1   _____

1.1.10.50   _____

220.90.130.45   _____

134.125.34.9   _____

95.250.91.99   _____