

Classful IP Addressing

Practice Exercises

1 Complete the following table which provides practice in converting a number from binary notation to decimal format.

Binary	128	64	32	16	8	4	2	1	Decimal
11001100	1	1	0	0	1	1	0	0	$128+64+8+4 = 204$
10101010									
11100011									
10110011									
00110101									

2 Complete the following table which provides practice in converting a number from decimal notation to binary format.

Decimal	128	64	32	16	8	4	2	1	Binary
48	0	0	1	1	0	0	0	0	$48=32+16=00110000_2$
222									
119									
135									
60									

3 Express 145.32.59.24 in binary format and identify the address class:

4 Express 200.42.129.16 in binary format and identify the address class:

5 Express 14.82.19.54 in binary format and identify the address class:

Subnetting Exercises

Subnetting Exercise #1

Assume that you have been assigned the 132.45.0.0/16 network block. You need to establish eight subnets.

1 _____ binary digits are required to define eight subnets.

2 Specify the extended network prefix that allows the creation of eight subnets.

3 Express the subnets in binary format and dotted-decimal notation:

#0 _____

#1 _____

#2 _____

#3 _____

#4 _____

#5 _____

#6 _____

#7 _____

4 List the range of host addresses that can be assigned to Subnet #3 (132.45.96.0/19).

5 What is the broadcast address for Subnet #3 (132.45.96.0/19)?

Subnetting Exercise #2

1 Assume that you have been assigned the 200.35.1.0/24 network block. Define an extended network prefix that allows the creation of 20 hosts on each subnet.

2 What is the maximum number of hosts that can be assigned to each subnet?

3 What is the maximum number of subnets that can be defined?

4 Specify the subnets of 200.35.1.0/24 in binary format and dotted-decimal notation.

5 List the range of host addresses that can be assigned to Subnet #6 (200.35.1.192/27).

6 What is the broadcast address for subnet 200.35.1.192/27?

CIDR Exercises

1 List the individual network numbers defined by the CIDR block 200.56.168.0/21.

2 List the individual network numbers defined by the CIDR block 195.24/13.

3 Aggregate the following set of four /24 IP network addresses to the highest degree possible.

212.56.132.0/24
212.56.133.0/24
212.56.134.0/24
212.56.135.0/24

4 Aggregate the following set of four /24 IP network addresses to the highest degree possible.

212.56.146.0/24
212.56.147.0/24
212.56.148.0/24
212.56.149.0/24

5 Aggregate the following set of 64 /24 IP network addresses to the highest degree possible.

202.1.96.0/24 202.1.97.0/24
202.1.98.0/24
:
202.1.126.0/24
202.1.127.0/24
202.1.128.0/24
202.1.129.0/24
:
202.1.158.0/24
202.1.159.0/24[answer has three parts, so use three lines]

6 How would you express the entire Class A address space as a single CIDR advertisement?

7 How would you express the entire Class B address space as a single CIDR advertisement?

8 How would you express the entire Class C address space as a single CIDR advertisement?
