

Subnetting

1. Given a class A network address with of 10.0.0.0 /24 answer the following questions:

How many bits were borrowed from the host portion of this address? _____

What is the subnet mask for this network? _____

How many usable subnetworks are there? _____

How many usable hosts are there per subnet? _____

What is the host range for usable subnet sixteen? _____

What is the network address for usable subnet sixteen? _____

What is the broadcast address for usable subnet sixteen? _____

What is the broadcast address for the last usable subnet? _____

What is the broadcast address for the major network? _____

2. Develop an IP addressing scheme for the 192.168.2.0 class C address. You must use the appropriate subnet mask to create at least ten subnets, with at least ten hosts on each subnet.

Which subnet mask did you choose? _____

How many subnets will be created using this mask? _____

How many hosts can be addressed on each subnet? _____

Since you know how many hosts (16) each subnet contains, it is easy to determine the subnet numbers for all of the subnets (start at 0 and add 16).

Complete the table below:

Subnet number	Subnetwork address
0	192.168.2.0 /28
1	192.168.2.16 /28
2	192.168.2.32 /28
3	
4	
5	
6	

7	
8	
9	
10	
11	
12	
13	
14	
15	

What is the subnetwork number for the fourth subnet? _____

Remember the fourth subnet created here is labeled subnet 3. Since this scenario considers subnet 0 to be "unusable", the third usable subnet is subnet 3.

3. A company has the class B address 172.16.0.0. The company needs to create a subnetting scheme to provide the following:
- 36 subnets with at least 100 hosts
 - 24 subnets with at least 255 hosts
 - 10 subnets with at least 50 hosts

It is not necessary to supply an address for the WAN connection, since it is supplied by the Internet service provider.

Answer the following questions:

How many subnets are needed for this network? _____

What is the minimum number of bits that can be borrowed? _____

What is the subnet mask for this network? _____

How many usable subnetworks are there? _____

How many usable hosts are there per subnet? _____

Complete the following chart listing the first three subnets and the last four subnets:

Subnetwork #	Subnetwork ID	Host Range	Broadcast ID

What is the host range for subnet two? _____

What is the broadcast address for the 126th subnet? _____

What is the broadcast address for the major network? _____