



Subnetting Examples

Example 1: Given the following IP address 10.245.131.0 and a subnet mask of 255.255.224.0 (/19) determine the following:

1. Class of the IP

A

2. Default subnet mask

255.0.0.0

3. Network Address

10.0.0.0

4. Subnet ID

00001010.11111011.10000011.00000000(10.245.131.0)

11111111.11111111.11100000.00000000 (255.255.224.0/19) AND

00001010.11110101.10000000.00000000

Network Bits=8 Subnetwork Bits=11 Host Bits=13

10.245.128.0

Example 2: Given the following IP address 172.16.189.5 a subnet mask of 255.255.254.0/23 determine the following:

1. Class of the IP

B

2. Default subnet mask

255.255.0.0

3. Network Address

172.16.0.0

4. Subnet ID

10101100.00010000.10111100.00000101(172.16.189.5)

11111111.11111111.11111110.00000000 (255.255.254.0/23) AND

10101100.00010000.10111100.00000000

Network Bits=16 Subnetwork Bits=7 Host Bits=9

Subnet ID=172.16.188.0

5. Broadcast address of the subnet.

Broad cast address = (Convert all the host bits in subnet ID to 1s)

Broadcast= **10101100.00010000.10111101.11111111=172.16.189.255**

Network Bits=16 **Subnetwork Bits=7** **Host Bits=9**

Example 3: Given the following IP address 192.168.121.46 a subnet mask of 255.255.255.240/28 determine the following:

1. Class of the IP

C

2. Default subnet mask

255.255.255.0

3. Network Address

192.168.121.0

4. Subnet ID

11000000.11111111.11111111.10111000 (192.168.121.46)

11111111.11111111.11111111.11110000 (255.255.255.240/28) AND

11000000.11111111.11111111.00100000
 Network Bits=24 Subnetwork Bit=4 Host Bits=4

192.168.121.32

5. Broadcast address of the subnet.

Broad cast address = (Convert all the host bits in subnet ID to 1s)

11000000.11111111.11111111.00101111
 Network Bits=24 Subnetwork Bit=4 Host Bits=4

192.168.121.47