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**IT134 C Networking 2**

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**ACTIVITY 2**

**Objectives:** Identify and Classify IPv4 addresses.

In this activity, you will examine the structure of Internet Protocol version 4 (IPv4) addresses. You will identify the various types of IPv4 addresses and the components that help comprise the address, such as network portion, host portion, and subnet mask. Types of addresses covered include public, private, unicast, and multicast

**A.** Analyze the table shown below and identify the network portion and host portion of the given IPv4 addresses.

|  |  |  |  |
| --- | --- | --- | --- |
| **IP Address/Prefix** | **Network/Host**  N,n = Network,  H, h = Host | **Subnet Mask** | **Network Address** |
| **192.168.10.10/24** | **N.N.N.H** | **255.255.255.0** | **192.168.10.0** |
| **10.101.99.17/23** | **N.N.nnnnnnnh.H** | **255.255.254.0** | **10.101.98.0** |
| 209.165.200.227/27 | **N.N.N.nnnhhhhh** | **255.255.255.224** | **209.165.200.224** |
| 172.31.45.252/24 | **N.N.N.H** | **255.255.255.0** | **172.31.45.0** |
| 10.1.8.200/26 | **N.N.N.nnhhhhhh** | **255.255.255.192** | **10.1.8.192** |
| 172.16.117.77/20 | **N.N.nnnnhhhh.H** | **255.255.240.0** | **172.16.112.0** |
| 10.1.1.101/25 | **N.N.N.nhhhhhhh** | **255.255.255.128** | **10.1.1.0** |
| 209.165.202.140/27 | **N.N.N.nnnhhhhh** | **255.255.255.224** | **209.165.202.128** |
| 192.168.28.45/28 | **N.N.N.nnnnhhhh** | **255.255.255.240** | **192.168.28.32** |

**B.** Analyze the table below and list the range of host and broadcast addresses given a network/prefix mask pair.

|  |  |  |  |
| --- | --- | --- | --- |
| IP Address/Prefix | First Host Address | Last Host Address | Broadcast Address |
| **192.168.10.10/24** | **192.168.10.1** | **192.168.10.254** | **192.168.10.255** |
| 10.101.99.17/23 | **10.101.98.1** | **10.101.99.254** | **10.101.99.255** |
| 209.165.200.227/27 | **209.165.200.225** | **209.165.200.254** | **209.165.200.255** |
| 172.31.45.252/24 | **172.31.45.1** | **172.31.45.254** | **172.31.45.255** |
| 10.1.8.200/26 | **10.1.8.193** | **10.1.8.254** | **10.1.8.255** |
| 172.16.117.77/20 | **172.16.112.1** | **172.16.127.254** | **172.16.127.255** |
| 10.1.1.101/25 | **10.1.1.1** | **10.1.1.126** | **10.1.1.127** |
| 209.165.202.140/27 | **209.165.202.129** | **209.165.202.158** | **209.165.202.159** |
| 192.168.28.45/28 | **192.168.28.33** | **192.168.28.46** | **192.168.28.47** |

**C.** Analyze the table shown below and identify the type of address (network, host, multicast, or broadcast address) and the prefix or CIDR.

|  |  |  |  |
| --- | --- | --- | --- |
| IP Address | Subnet Mask | Prefix | Address Type |
| **10.1.1.1** | **255.255.255.252** | **/30** | **host** |
| 192.168.33.63 | 255.255.255.192 | **/26** | **broadcast** |
| 239.192.1.100 | 255.252.0.0 | **/14** | **multicast** |
| 172.25.12.52 | 255.255.255.0 | **/24** | **host** |
| 10.255.0.0 | 255.0.0.0 | **/8** | **host** |
| 172.16.128.48 | 255.255.255.240 | **/28** | **network** |
| 209.165.202.159 | 255.255.255.224 | **/27** | **broadcast** |
| 172.16.0.255 | 255.255.0.0 | **/16** | **host** |
| 224.10.1.11 | 255.255.255.0 | **/24** | **multicast** |

**D.** Analyze the table shown below and identify the address as public or private.

|  |  |
| --- | --- |
| **IP Address/Prefix** | **Public or Private** |
| 209.165.201.30/27 | **Public** |
| 192.168.255.253/24 | **Private** |
| 10.100.11.103/16 | **Private** |
| 172.30.1.100/28 | **Private** |
| 192.31.7.11/24 | **Public** |
| 172.20.18.150/22 | **Private** |
| 128.107.10.1/16 | **Public** |
| 192.135.250.10/24 | **Public** |
| 64.104.0.11/16 | **Public** |