

NET 363

Subnet Review Problems

Answers

Greg Brewster
DePaul University

Listing Addresses – Try it!

Subnet ID	Subnet Size	Addresses in Subnet
12.16.20.128/25	128	12.16.20.128 – 12.16.20.255
58.12.99.48/28	16	58.12.99.48 – 58.12.99.63
91.52.69.0/24	256	91.52.69.0 – 91.52.69.255
22.69.32.0/19	8192	22.69.32.0 – 22.69.63.255

Practice Problem #1

- PC #1 has IP address 140.192.92.16. PC #2 has IP address 140.192.67.29.
 - If the subnet mask is 255.255.255.0 are PC #1 and PC #2 on the same subnet or different subnets? What are the assignable IPs for each subnet they are on?
 - **Different subnets**
 - **PC #1 Subnet ID is 140.192.92.0/24**
 - **Assignable IPs = 140.192.92.1 – 140.192.92.254**
 - **PC #2 Subnet ID is 140.192.67.0/24**
 - **Assignable IPs = 140.192.67.1 – 140.192.67.254**
 - If the subnet mask is 255.255.240.0 are PC #1 and PC #2 on the same subnet or different subnets? What are the assignable IPs for each subnet they are on?
 - **Different subnets**
 - **PC #1 Subnet ID is 140.192.80.0/20**
 - **Assignable IPs = 140.192.80.1 – 140.192.95.254**
 - **PC #2 Subnet ID is 140.192.64.0/20**
 - **Assignable IPs = 140.192.64.1 – 140.192.79.254**

Practice Problem #1

- PC #1 has IP address 140.192.92.16. PC #2 has IP address 140.192.67.29.
 - If the subnet mask is 255.255.224.0 are PC #1 and PC #2 on the same subnet or different subnets? What are the assignable IPs for each subnet they are on?
 - **Same subnet**
 - **PC #1 Subnet ID is 140.192.64.0/19**
 - **Assignable IPs = 140.192.64.1 – 140.192.95.254**
 - **PC #2 subnet is the same.**
 - If the subnet mask is 255.255.192.0 are PC #1 and PC #2 on the same subnet or different subnets? What are the assignable IPs for each subnet they are on?
 - **Same subnet**
 - **PC #1 Subnet ID is 140.192.64.0/18**
 - **Assignable IPs = 140.192.64.1 – 140.192.127.254**
 - **PC #2 subnet is the same.**

Practice Problem #2

- A company needs at least 55 IP addresses per subnet. What subnet mask should they use?
 - **Answer: 64 is the smallest power of 2 bigger than 55. $2^6 = 64$, so we need 6 host bits to get subnet size = 64. The remaining bits are prefix bits, so prefix length is $(32-6) = 26$. So this is a /26 subnet, so mask is 255.255.255.192.**

Practice Problem #3

- For IP address 142.69.108.13 and subnet mask 255.255.224.0, what is the Subnet ID?

— **142.69.96.0/19**

Practice Problem #4

- A PC with IP address 142.69.108.141 and subnet mask 255.255.255.248 wants to send a broadcast packet to all devices in its subnet. What IP broadcast address should it use?
 - **Answer: They should use 142.69.108.143**