**PRACTICE EXERCISES 1**

Problem 1:

|  |  |
| --- | --- |
| **GIVEN** | |
| Host IP Address: | 192.168.200.139 |
| Original Subnet Mask | 255.255.255.0 (/24) |
| New Subnet Mask | 255.255.255.224 (/27) |

|  |  |
| --- | --- |
| **FIND** | |
| Number of Subnet Bits | 27 – 24 = **3** |
| Number of Subnet Created | 2^3 = **8** |
| Number of Host Bits per Subnet | 32 – 27 = **5** |
| Number of Hosts per Subnet | 2^5 – 2 = **30** |
| Network Address of this Subnet | AND(host address, new subnet mask)  = 192.168.200**.128** |
| IPv4 Address of First Host on this Subnet | 192.168.200**.129** |
| IPv4 Address of Last Host on this Subnet | 192.168.200**.158** |
| IPv4 Broadcast Address on this Subnet | 192.168.200**.159** |

2^4 = 16

2^4 – 2 = 14 bit

Problem 2:

|  |  |
| --- | --- |
| **GIVEN** | |
| Host IP Address: | 10.101.99.228 |
| Original Subnet Mask | 255.0.0.0 (/8) |
| New Subnet Mask | 255.255.128.0 (/17) |

|  |  |
| --- | --- |
| **FIND** | |
| Number of Subnet Bits | 17 – 8 = **9** |
| Number of Subnet Created | 2^9 = **512** |
| Number of Host Bits per Subnet | 32 – 17 = **15** |
| Number of Hosts per Subnet | 2^15 – 2 = **32766** |
| Network Address of this Subnet | AND(host address, new subnet mask)  = **10.101.0.0** |
| IPv4 Address of First Host on this Subnet | **10.101.0.1** |
| IPv4 Address of Last Host on this Subnet | **10.101.127.254** |
| IPv4 Broadcast Address on this Subnet | **10.101.127.255** |

Problem 3:

|  |  |
| --- | --- |
| **GIVEN** | |
| Host IP Address: | 172.22.32.12 |
| Original Subnet Mask | 255.255.0.0 (/16) |
| New Subnet Mask | 255.255.224.0 (/19) |

|  |  |
| --- | --- |
| **FIND** | |
| Number of Subnet Bits | 19 – 16 = **3** |
| Number of Subnet Created | 2^3 = **8** |
| Number of Host Bits per Subnet | 32 – 19 = **13** |
| Number of Hosts per Subnet | 2^13 – 2 = **8190** |
| Network Address of this Subnet | **172.22.32.0**  AND(host address, new subnet mask) |
| IPv4 Address of First Host on this Subnet | **172.22.32.1** |
| IPv4 Address of Last Host on this Subnet | **172.22.63.254** |
| IPv4 Broadcast Address on this Subnet | **172.22.63.255** |

**8190 / 256 = 31 (công thức) dư 254 vì:**

31 \* 256 = 7936

8190 – 7936 = 254 => dư 254

Tải Dacket Traccer về làm bài.