Problem 1

|  |  |
| --- | --- |
| Given: | |
| Host IP Address: | 192.168.200.139 |
| Original Subnet Mask: | 255.255.255.0 |
| New Subnet Mask: | 255.255.255.224 |

|  |  |
| --- | --- |
| Find: | |
| Number of Subnet Bits | 3 |
| Number of Subnet Created | 23 = 8 |
| Number of Host Bits per Subnet | 8-3 = 5 |
| Number of Hosts per Subnet | 25-2 = 30 |
| Network Address of this Subnet | 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 |

Problem 2

|  |  |
| --- | --- |
| Given: | |
| Host IP Address: | 10.101.99.228 |
| Original Subnet Mask: | 255.0.0.0 |
| New Subnet Mask: | 255.255.128.0 |

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| --- | --- |
| Find: | |
| Number of Subnet Bits | 9 |
| Number of Subnet Created | 29 = 512 |
| Number of Host Bits per Subnet | 15 |
| Number of Hosts per Subnet | 215 – 2 = 32766 |
| Network Address of this Subnet | 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 |
| New Subnet Mask: | 255.255.224.0 |

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| --- | --- |
| Find: | |
| Number of Subnet Bits | 3 |
| Number of Subnet Created | 23 = 8 |
| Number of Host Bits per Subnet | 8 + 5 = 13 |
| Number of Hosts per Subnet | 213 – 2 = |
| Network Address of this Subnet | 172.22.0.0 |
| IPv4 Address of First Host on this Subnet | 172.22.0.1 |
| IPv4 Address of Last Host on this Subnet | 172.22.31.254 |
| IPv4 Broadcast Address on this Subnet | 172.22.31.255 |

Problem 4

|  |  |
| --- | --- |
| Given: | |
| Host IP Address: | 192.168.1.245 |
| Original Subnet Mask: | 255.255.255.0 |
| New Subnet Mask: | 255.255.255.252 |

|  |  |
| --- | --- |
| Find: | |
| Number of Subnet Bits | 6 |
| Number of Subnet Created | 26 = 64 |
| Number of Host Bits per Subnet | 2 |
| Number of Hosts per Subnet | 22 -2 = 2 |
| Network Address of this Subnet | 192.168.1.244 |
| IPv4 Address of First Host on this Subnet | 192.168.1.245 |
| IPv4 Address of Last Host on this Subnet | 192.168.1.246 |
| IPv4 Broadcast Address on this Subnet | 192.168.1.247 |

Problem 5

|  |  |
| --- | --- |
| Given: | |
| Host IP Address: | 128.107.0.55 |
| Original Subnet Mask: | 255.255.0.0 |
| New Subnet Mask: | 255.255.255.0 |

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| --- | --- |
| Find: | |
| Number of Subnet Bits | 8 |
| Number of Subnet Created | 28 = 256 |
| Number of Host Bits per Subnet | 8 |
| Number of Hosts per Subnet | 28 – 2 = 254 |
| Network Address of this Subnet | 128.107.0.0 |
| IPv4 Address of First Host on this Subnet | 128.107.0.1 |
| IPv4 Address of Last Host on this Subnet | 128.107.0.254 |
| IPv4 Broadcast Address on this Subnet | 128.107.0.255 |

Problem 6

|  |  |
| --- | --- |
| Given: | |
| Host IP Address: | 192.135.250.180 |
| Original Subnet Mask: | 255.255.255.0 |
| New Subnet Mask: | 255.255.255.248 |

|  |  |
| --- | --- |
| Find: | |
| Number of Subnet Bits | 5 |
| Number of Subnet Created | 25 = 32 |
| Number of Host Bits per Subnet | 3 |
| Number of Hosts per Subnet | 23 – 2 = 6 |
| Network Address of this Subnet | 192.135.250.176 |
| IPv4 Address of First Host on this Subnet | 192.135.250.177 |
| IPv4 Address of Last Host on this Subnet | 192.135.250.182 |
| IPv4 Broadcast Address on this Subnet | 192.135.260.183 |