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Network I

1. Find Network Address, Broadcast Address and Range of usable IP address form below IP address:
2. 10.10.10.50/27
3. 192.168.168.168/25
4. 11.11.11.11/29
5. 192.168.168.192/24
6. 20.20.20.20/28
7. Find Network address, Broadcast address and Range of IP address form below IP address with standard calculation (AND and OR Operation)
8. 172.17.17.17/21
9. 10.10.10.10/16

Answer

1. Find Network Address, Broadcast Address and Range of usable IP address from below IP address:
2. 10.10.10.50/27

232-27 = 25 = 32

* Usable IP = 10.10.10.33 -> 10.10.10.62
* Network Address = 10.10.10.32/27
* Broadcast Address = 10.10.10.63/27

1. 192.168.168.168/25

232-25 = 27 = 128

* Usable IP = 192.168.168.129 -> 192.168.168.254
* Network Address = 192.168.168.128/25
* Broadcast Address = 192.168.168.255/25

1. 11.11.11.11/29

232-29 = 23= 8

* Usable IP Address = 11.11.11.12 -> 11.11.11.17
* Network Address = 11.11.11.11/29
* Broadcast Address = 11.11.11.18/29

1. 192.168.168.192/24

232-24 = 28 = 256

* Usable IP Address = 192.168.168.1 -> 192.168.168.254
* Network Address = 192.168.168.0/24
* Broadcast Address = 192.168.168.255/24

1. 20.20.20.20/28

232-28 = 24 = 16

* Usable IP Address = 20.20.20.17 -> 20.20.20.30
* Network Address = 20.20.20.16/28
* Broadcast Address = 20.20.20.31/28

1. Find Network address, Broadcast address and Range of IP address form below IP address with standard calculation (AND and OR Operation)
2. 172.17.17.17/21

172.17.17.17 = 1 0 1 0 1 1 0 0. 0 0 0 1 0 0 0 1. 0 0 0 1 0 0 0 1. 0 0 0 1 0 0 0 1

/21 = 1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1.1 1 1 1 0 0 0 0.0 0 0 0 0 0 0 0

Find Network Address by using AND Operation:

1 0 1 0 1 1 0 0. 0 0 0 1 0 0 0 1. 0 0 0 1 0 0 0 0.0 0 0 0 0 0 0 0

= 172.17.16.0

Find Broadcast Address by using OR Operation:

Network Address:

1 0 1 0 1 1 0 0. 0 0 0 1 0 0 0 1. 0 0 0 1 0 0 0 0.0 0 0 0 0 0 0 0

Inverted Subnet mask:

0 0 0 0 0 0 0 0. 0 0 0 0 0 0 0 0. 0 0 0 0 1 1 1 1. 1 1 1 1 1 1 1 1

Network Address OR Inverted Subnet mask:

1 0 1 0 1 1 0 0. 0 0 0 1 0 0 0 1. 0 0 0 1 1 1 1 1.1 1 1 1 1 1 1 1

= 172.17.31.255

Therefore:

Network Address -> 172.17.16.0

Broadcast Address -> 172.17.31.255

1. 10.10.10.10/16

10.10.10.10 = 0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0

/16 = 1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1.0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0

Find Network Address by using AND Operation:

0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0. 0 0 0 0 0 0 0 0. 0 0 0 0 0 0 0 0

= 10.10.0.0

Find Broadcast Address by using OR Operation:

Network Address:

0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0. 0 0 0 0 0 0 0 0. 0 0 0 0 0 0 0 0

Inverted Subnet Mask:

0 0 0 0 0 0 0 0.0 0 0 0 0 0 0 0. 1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1

Network Address OR Inverted Subnet Mask:

0 0 0 0 1 0 1 0. 0 0 0 0 1 0 1 0. 1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1

= 10.10.255.255

Therefore:

Network Address -> 10.10.0.0

Broadcast Address -> 10.10.255.255