**LAB 13**

**IPv4 addressing**

1. What is the CIDR notation (prefix notation) of the IP addresses below? Write down all the intermediate steps!
   1. 169.254.16.3 with subnet mask 255.255.0.0

255.255.0.0 = 11111111 11111111 00000000 00000000

16 x 1 = 169.254.16.3/16

* 1. 109.25.33.4 with subnet mask 255.240.0.0

255.240.0.0 = 11111111 11110000 00000000 00000000

12 x 1 = 109.25.33.4/12

1. What is the subnet mask in dotted decimal notation associated with the IP addresses below? Write down all the intermediate steps!
   1. 10.64.12.11/8

11111111 00000000 00000000 00000000

255.0.0.0

* 1. 192.64.12.11/26

11111111 11111111 11111111 11000000

255.255.255.192

1. Write down the requested information for the network addresses below. Write down all the intermediate steps!
   1. 132.0.0.0/16

**Network ID in binary notation =** 10000100 00000000

**First host address =** 132.0.0.1

**Broadcast address =** 132.0.255.255

**Last host address =** 132.0.255.254

**Number of host addresses =** 216 – 2 = 65534

* 1. 132.0.0.0/20

**Network ID in binary notation =** 10000100 00000000 0000

**First host address =** 132.0.0.1

**Broadcast address =** 132.0.15.255

**Last host address =** 132.0.15.154

**Number of host addresses =** 212 – 2=4094

1. Check if the IP addresses below belong to the same network. Write down all the intermediate steps!
   1. 10.64.12.11/8 and 10.65.12.12/8

Both IP’s belong to the same network. The first 8 bits are the same

* 1. 10.64.12.11/10 and 10.75.12.12/10

These IP’s also belong to the same network. The first 8 bits are the same (10), just as the remaining 2 bits from the 2nd decimal number (64 – 01000000 and 75 – 01001011)

1. Calculate the network address and broadcast address associated with the IP address 130.1.130.7/18. Write down all the intermediate steps.

IP: 10000010 00000001 100000010 00000111

Network address: 10000010 00000001 10000000 00000000 = 130.1.128.0

Broadcastadres = 10000010 00000001 10111111 11111111 = 130.1.191.255