Computer Networks

Assignment 3

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Question 1.

IP addresses used for networks:

130.1.0.0 - 130.35.0.0

Question 2.

IP: 162.11.23.211

Subnets: 30, $2^5 = 32$

Hosts: 812, $2^{10} = 1024$

1024 x 32 = 32768

As B class, $A^{16} = 65536$

65536 - 2 > 32768, yes

New subnet mask

11111111.11111111.11111000.00000000

255.255.248.0

Remaining bits = 32 - 16 + 5 = 11

$2^{11} = 2048$

2048 / 256 = 8

All Subnets:

Network Address	Usable Host Range	Broadcast Address:
162.11.0.0	**162.11.0.1 - 162.11.7.254**	**162.11.7.255**
162.11.8.0	**162.11.8.1 - 162.11.15.254**	**162.11.15.255**
162.11.16.0	**162.11.16.1 - 162.11.23.254**	**162.11.23.255**
162.11.24.0	**162.11.24.1 - 162.11.31.254**	**162.11.31.255**
162.11.32.0	**162.11.32.1 - 162.11.39.254**	**162.11.39.255**
162.11.40.0	**162.11.40.1 - 162.11.47.254**	**162.11.47.255**
162.11.48.0	**162.11.48.1 - 162.11.55.254**	**162.11.55.255**
162.11.56.0	**162.11.56.1 - 162.11.63.254**	**162.11.63.255**
162.11.64.0	**162.11.64.1 - 162.11.71.254**	**162.11.71.255**
162.11.72.0	**162.11.72.1 - 162.11.79.254**	**162.11.79.255**
162.11.80.0	**162.11.80.1 - 162.11.87.254**	**162.11.87.255**
162.11.88.0	**162.11.88.1 - 162.11.95.254**	**162.11.95.255**

162.11.96.0	**162.11.96.1 - 162.11.103.254**	**162.11.103.255**
162.11.104.0	**162.11.104.1 - 162.11.111.254**	**162.11.111.255**
162.11.112.0	**162.11.112.1 - 162.11.119.254**	**162.11.119.255**
162.11.120.0	**162.11.120.1 - 162.11.127.254**	**162.11.127.255**
162.11.128.0	**162.11.128.1 - 162.11.135.254**	**162.11.135.255**
162.11.136.0	**162.11.136.1 - 162.11.143.254**	**162.11.143.255**
162.11.144.0	**162.11.144.1 - 162.11.151.254**	**162.11.151.255**
162.11.152.0	**162.11.152.1 - 162.11.159.254**	**162.11.159.255**
162.11.160.0	**162.11.160.1 - 162.11.167.254**	**162.11.167.255**
162.11.168.0	**162.11.168.1 - 162.11.175.254**	**162.11.175.255**
162.11.176.0	**162.11.176.1 - 162.11.183.254**	**162.11.183.255**
162.11.184.0	**162.11.184.1 - 162.11.191.254**	**162.11.191.255**
162.11.192.0	**162.11.192.1 - 162.11.199.254**	**162.11.199.255**
162.11.200.0	**162.11.200.1 - 162.11.207.254**	**162.11.207.255**
162.11.208.0	**162.11.208.1 - 162.11.215.254**	**162.11.215.255**
162.11.216.0	**162.11.216.1 - 162.11.223.254**	**162.11.223.255**

162.11.224.0	**162.11.224.1 - 162.11.231.254**	**162.11.231.255**
162.11.232.0	**162.11.232.1 - 162.11.239.254**	**162.11.239.255**
162.11.240.0	**162.11.240.1 - 162.11.247.254**	**162.11.247.255**
162.11.248.0	**162.11.248.1 - 162.11.255.254**	**162.11.255.255**

Question 3:

IP: 171.10.33.103

Subnets: 54, $2^6 = 64$

Hosts: 519, $2^{10} = 1024$

1024 x 64 = 65536

As B class, $2^{16} = 65536$

65536 - 2 >= 65534, No

Therefore, we cannot make subnets for this IP address with this amount of hosts and subnets

Question 4:

IP: 12.12.12.12

Subnets: 3333, $2^{12} = 4096$

Hosts: 4011, $2^{12} = 4096$

4096 x 4096 = 16,777,216

As A class, $2^{24} = 16,777,216$

16,777,216 - 2 >= 16,777,216, no

Therefore, we cannot make subnets for this IP address with this amount of hosts and subnets

Question 5:

IP: 191.255.255.255

Subnets: 512, $2^9 = 512$

Hosts: 511, $2^9 = 512$

512 x 512 = 262,144

As B class, $2^{16} = 65536$

65536 - 2 >= 262,144, no

Therefore, we cannot make subnets for this IP address with this amount of hosts and subnets