Problem 7

Number of needed subnets **2000**
Number of needed usable hosts **15**
Network Address **178.100.0.0**

Address class ____B_____

Default subnet mask ___255.255.0.0_____

Custom subnet mask _____255.255.255.224_____

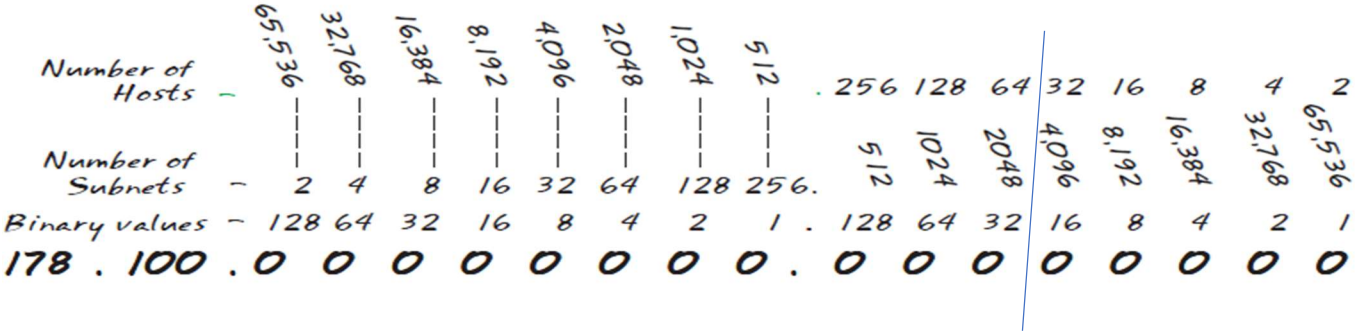
Total number of subnets _____2048_____

Total number of host addresses _____32_____

Number of usable addresses _____30_____

Number of bits borrowed _____11_____

Show your work for Problem 7 in the space below.



128+64+32+16+8+4+2+1 = 255
128+64+32 = 224 // To create the custom subset mask
Total number of subnets = $2^s = 2^{11} = 2048$
//Borrowed 11 bits
Number of hosts are 32
Number of Usable addresses = 32 -2 =30

Problem 15

Number of needed usable hosts **50**
Network Address **172.59.0.0**

` Address class ___B__

Default subnet mask _____255.255.0.0_____

Custom subnet mask _____255.255.255.192_____

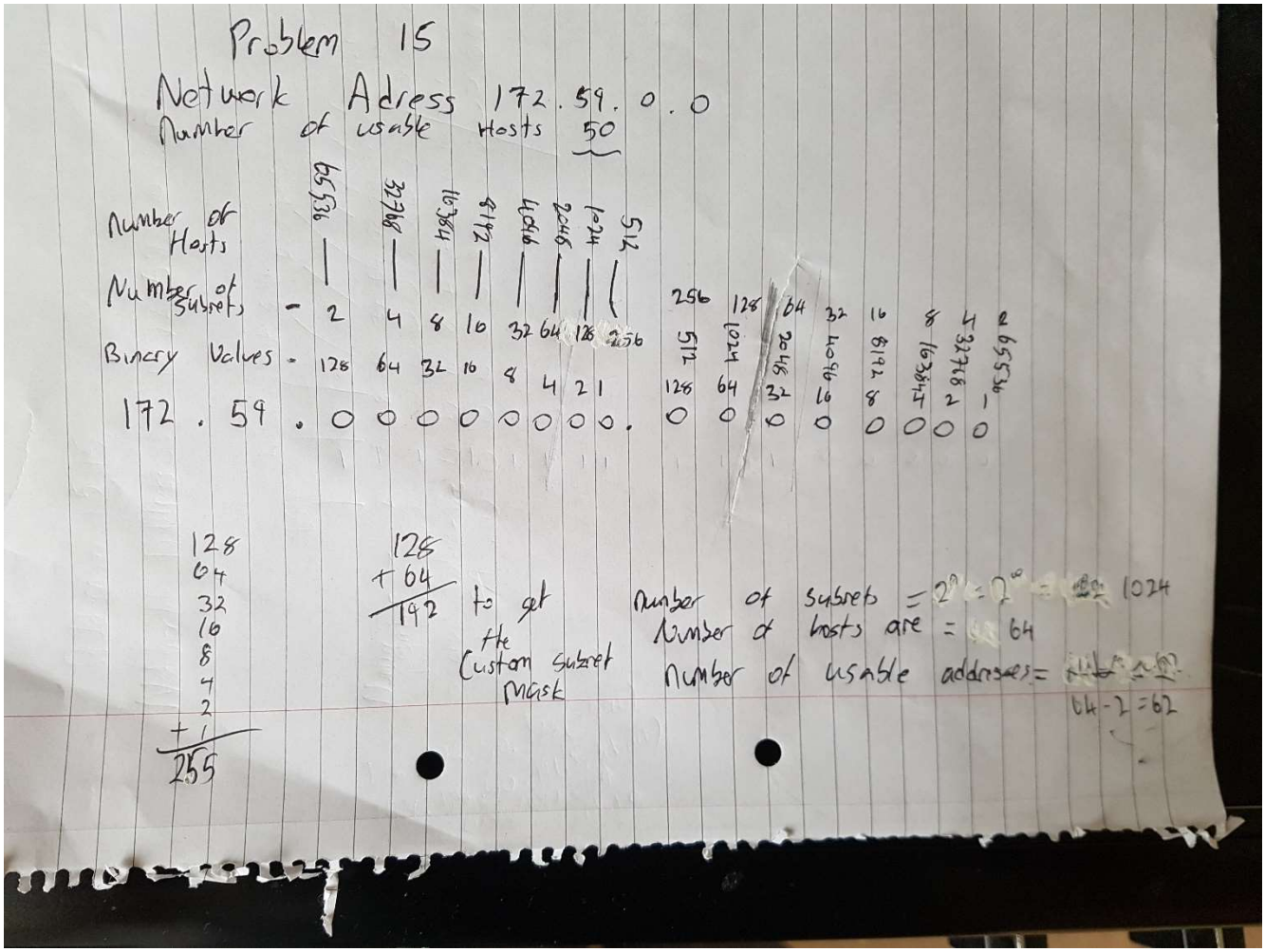
Total number of subnets _____1024_____

Total number of host addresses _____64_____

Number of usable addresses _____62_____

Number of bits borrowed _____10_____

Work for Problem 15 in the space below.



Subnetting

Problem 11

Number of needed usable hosts **8,000**
Network Address **135.70.0.0**

Address class ____B_____

Default subnet mask _____255.255.0.0_____

Custom subnet mask _____255.255.224.0_____

Total number of subnets _____8_____

Total number of host addresses _____8192_____

Number of usable addresses _____8190_____

Number of bits borrowed _____3_____

What is the 6th subnet range?

_____135.70.0.160__to__135.70.0.191_____

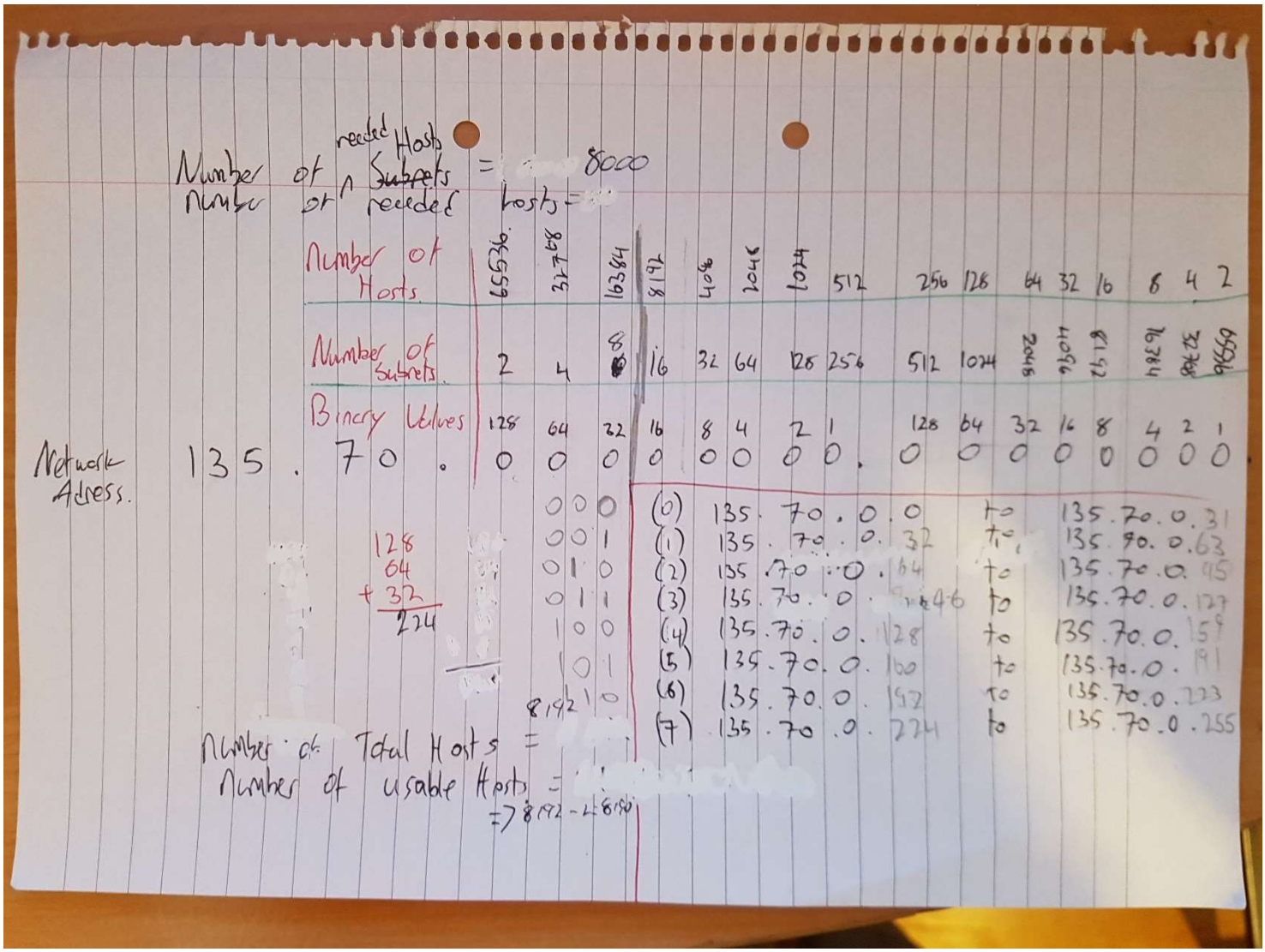
What is the subnet number for the 7th subnet?

_____135.70.0.192_____

What is the subnet broadcast address for the 3rd subnet?
_____135.70.0.19295_____

What are the assignable addresses for the 5th subnet?
_____135.70.0.161__to__135.70.0.190_____

Problem 11 in the space below.



Problem 12

Number of needed usable hosts **45**
Network Address **198.125.50.0**

Address class ____C_____

Default subnet mask _____255.255.255.0_____

Custom subnet mask _____255.255.255.192_____

Total number of subnets _____4_____

Total number of host addresses _____64_____

Number of usable addresses _____62_____

Number of bits borrowed _____2_____

What is the 2nd subnet range?

_____198.125.50.64__to___198.125.50.127_____

What is the subnet number for the 2nd subnet?

_____198.125.50.64_____

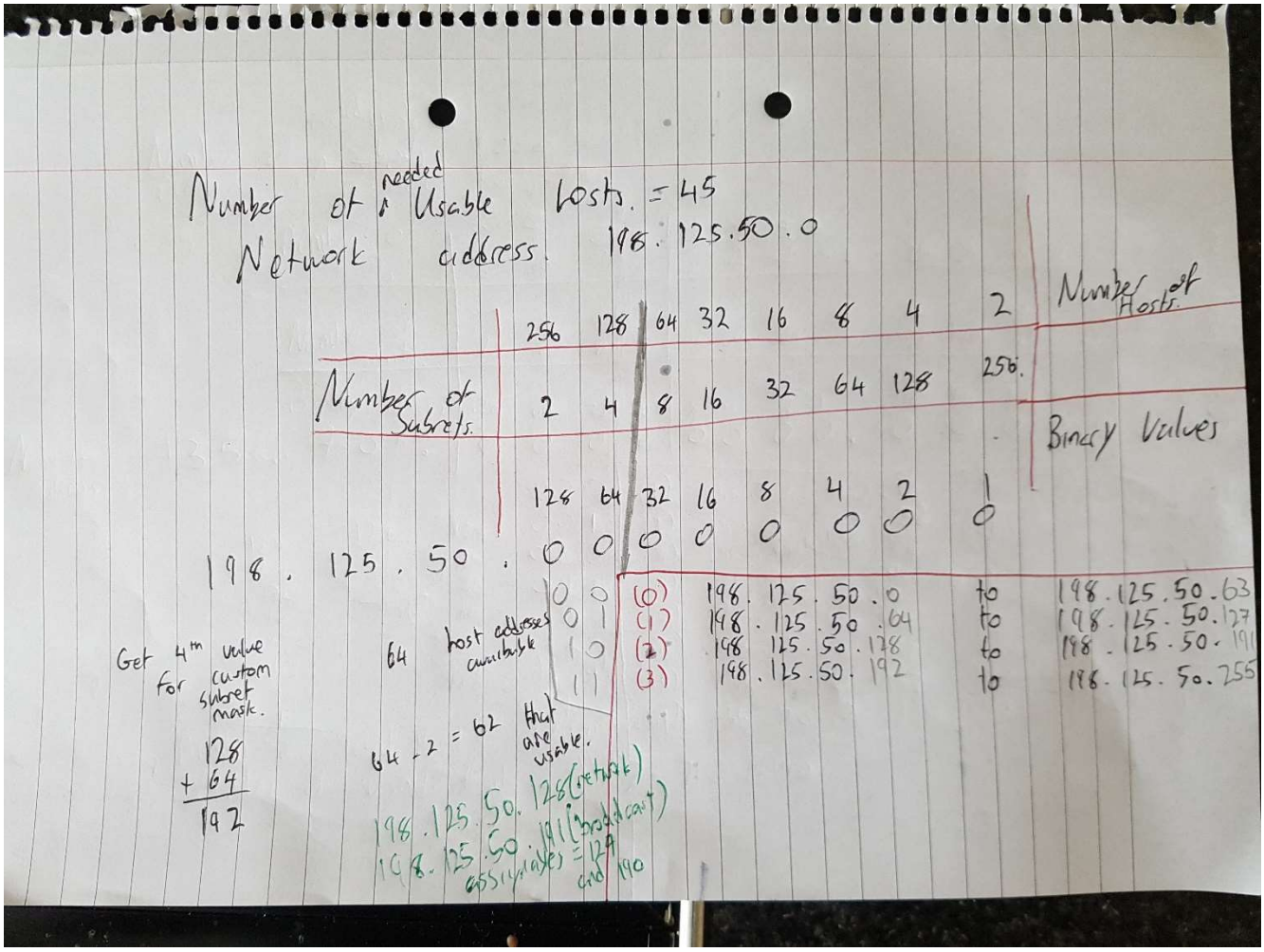
What is the subnet broadcast address for the 4th subnet?

_____198.125.50.255_____

What are the assignable addresses for the 3rd subnet?

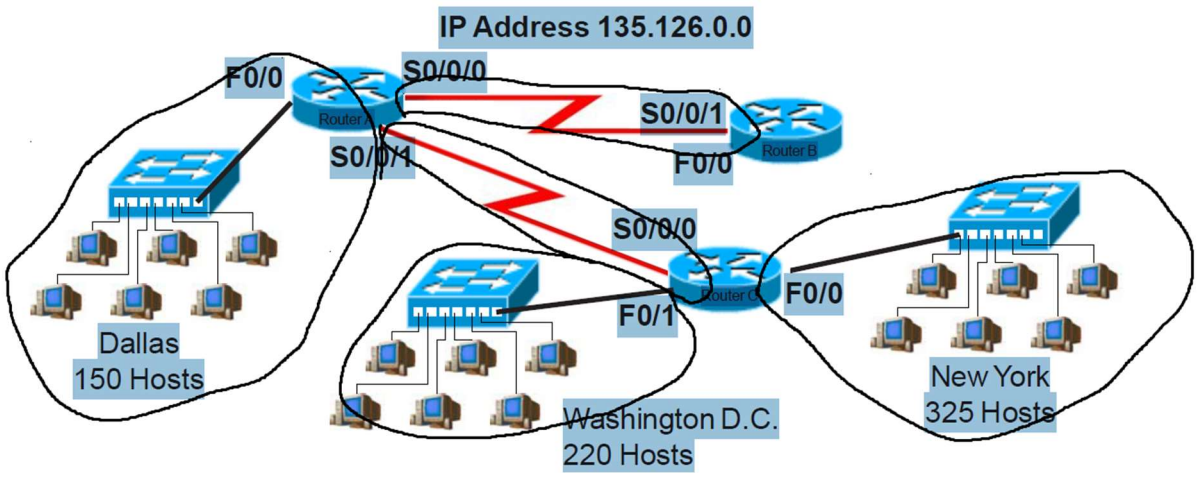
_____198.125.50.129__to 198.125.50.192_____

Problem 12 in the space below.



Practical Subnetting 4

Based on the information in the graphic shown, design a network addressing scheme that will supply the **minimum number of subnets**, and allow enough extra subnets and hosts for 70% growth in all areas. Circle each subnet on the graphic and answer the questions below.



IP Address 135.126.0.0

Address class ____B_____

Custom subnet mask _____255.255.255.224_____

Minimum number of subnets needed_____5_____

Extra subnets required for 70% growth_____4_____

Total number of subnets needed _____9_____

Number of host addresses
in the largest subnet group_____325_____

Number of addresses needed for
70% growth in the largest subnet_____228_____

Total number of address
needed for the largest subnet____553 _____

Start with the first subnet and arrange your sub-networks from the largest group to the smallest.

IP address range for New York__165.100.0.64__to__165.100.0.127____

IP address range for Washington D. C.

__ 165.100.0.128__to__165.100.0.191

IP address range for Dallas_____

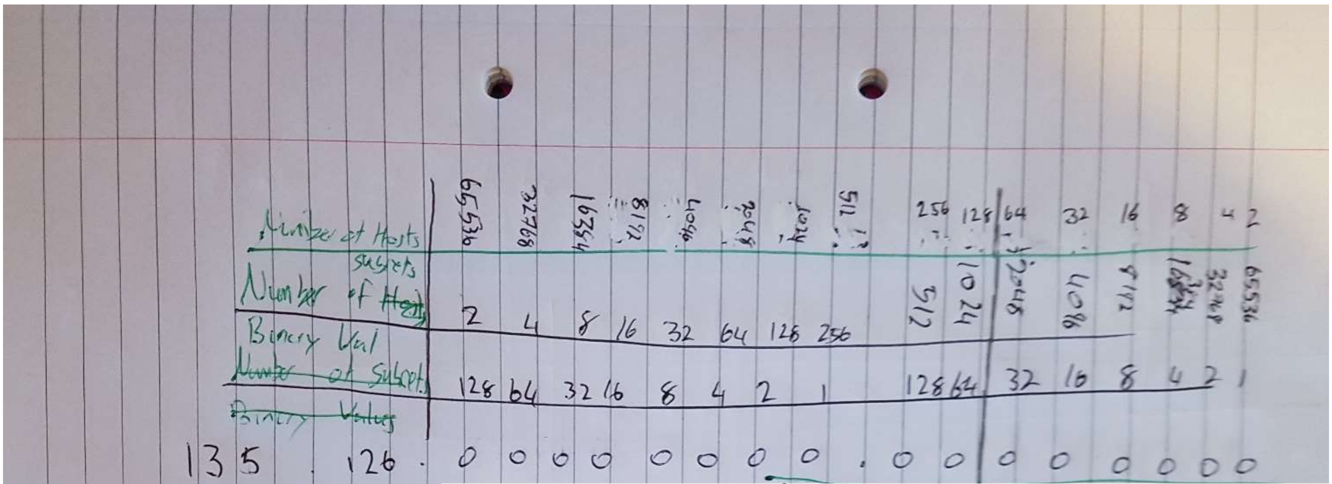
IP address range for Router A
to Router B serial connection_____

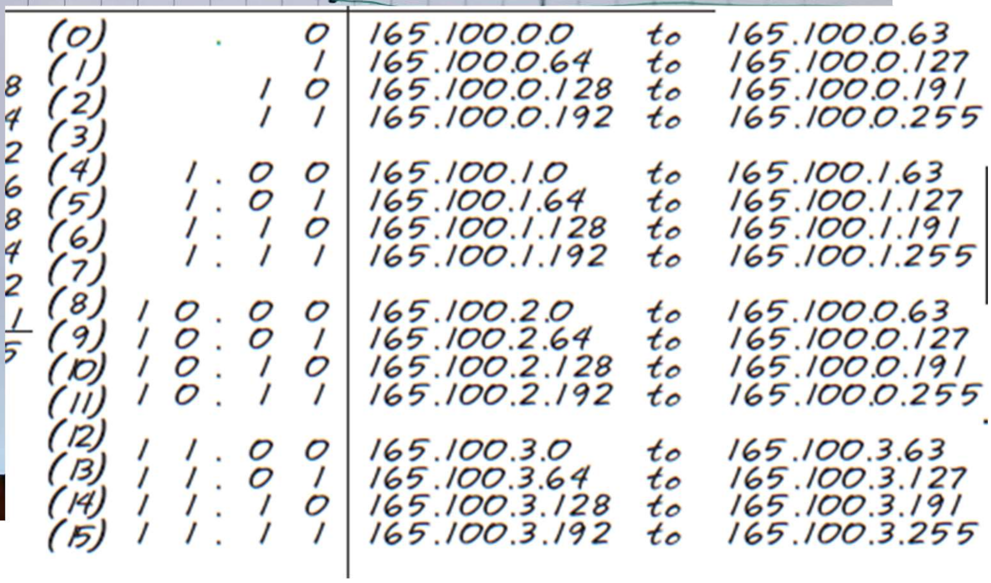
Number of host addresses
in the largest subnet group_____

IP address range for Router A

to Router C serial connection__________________

Work Done

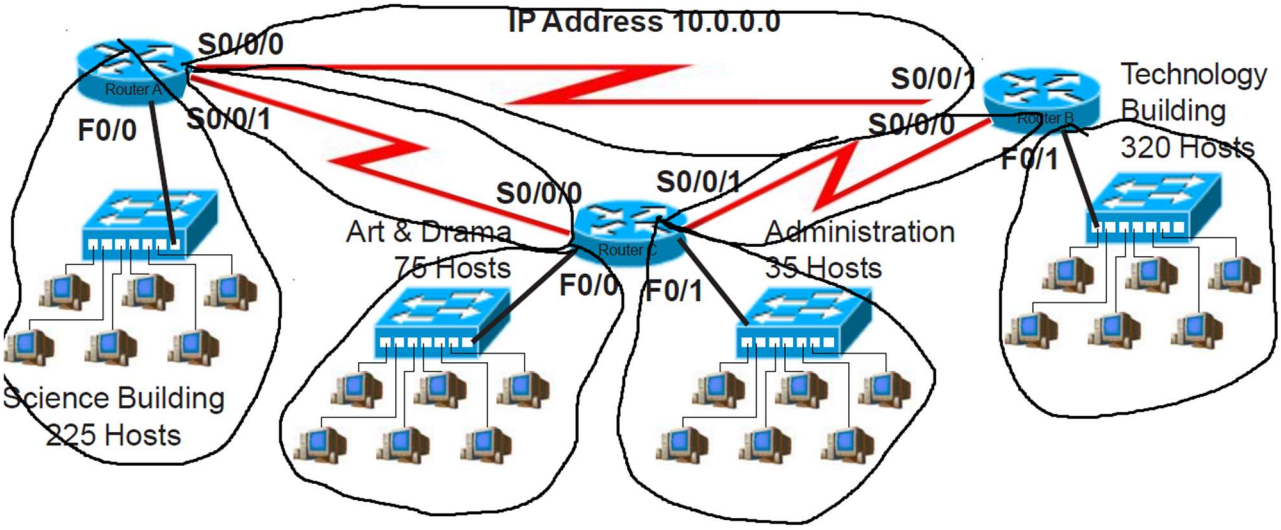




(0)	0	165.100.0.0	to	165.100.0.63
(1)	1	165.100.0.64	to	165.100.0.127
(2)	1 0	165.100.0.128	to	165.100.0.191
(3)	1 1	165.100.0.192	to	165.100.0.255
(4)	1 . 0 0	165.100.1.0	to	165.100.1.63
(5)	1 . 0 1	165.100.1.64	to	165.100.1.127
(6)	1 . 1 0	165.100.1.128	to	165.100.1.191
(7)	1 . 1 1	165.100.1.192	to	165.100.1.255
(8)	1 0 . 0 0	165.100.2.0	to	165.100.0.63
(9)	1 0 . 0 1	165.100.2.64	to	165.100.0.127
(10)	1 0 . 1 0	165.100.2.128	to	165.100.0.191
(11)	1 0 . 1 1	165.100.2.192	to	165.100.0.255
(12)	1 1 . 0 0	165.100.3.0	to	165.100.3.63
(13)	1 1 . 0 1	165.100.3.64	to	165.100.3.127
(14)	1 1 . 1 0	165.100.3.128	to	165.100.3.191
(15)	1 1 . 1 1	165.100.3.192	to	165.100.3.255

Practical Subnetting 6

Based on the information in the graphic shown, design a network addressing scheme that will supply the **minimum number of subnets**, and allow enough extra subnets and hosts for 20% growth in all areas. Circle each subnet on the graphic and answer the questions below.



IP Address 10.0.0.0

Address class ____A_____

Custom subnet mask _____255.255.255.224_____

Minimum number of subnets needed_____7_____

Extra subnets required for 20% growth_____1_____

Total number of subnets needed _____8_____

Start with the first subnet and arrange your sub-networks from the largest group to the smallest.

IP address range for Technology_____

IP address range for Science_____

IP address range for Arts & Drama_____

IP Address range Administration_____

IP address range for Router A
to Router B serial connection_____

IP address range for Router A
to Router C serial connection_____

IP address range for Router B
to Router C serial connection