EXMAPLE1:
SUBNETTING STEPS:

GIVEN: 192.186.0.0/24

1. Determine Net & Host Requirements

subnets: 4

hosts: 50

2. Staisfy Net and Host Reqirements

subnet bits	=2^s ≥ 4	2	→S=	2	MULTIPLIER:	
host bits	=(2^h)-2 ≥50	6	→H=	6	=2^H	64

3.Subnet Mask

11111111	11111111	11111111	11 000000	[binary format]
nnnnnnnn	nnnnnnnn	nnnnnnnn	ss hhhhhh	
255.	255.	255	.192	[dotted decimal notaion]
			/26	[prefix Notation]

4,5,6. Determine Network, Broadcast and Usable Host IP Addresses

192 186 0 0

\- - - nnhhhhhhh

Subnet #	Net Address	1st Usable Address	Last Usable Address	Broadcast Address	
1	192.168.0.0	192.168.0.1	192.168.0.62	192.168.0.63	00000000
2	192.168.0.64	192.168.0.65	192.168.0.126	192.168.0.127	01000000
3	192.168.0.128	192.168.0.12	192.168.0.190	192.168.0.191	10000000
4	192.168.0.192	192.168.0.19	192.168.0.254	192.168.0.255	11000000

ADDRESSING TABLE:

Device	Interface	IP Address	Subnet Mask	Default Gateway
CustomerRouter	G0/0	**192.168.0.1**	**255.255.255.192**	N/A
	G0/1	**192.168.0.65**	**255.255.255.192**	
	S0/1/0	209.165.201.2	255.255.255.252	
LAN-A Switch	VLAN1	**192.168.0.2**	**255.255.255.192**	**192.168.0.1**
LAN-B Switch	VLAN1	**192.168.0.66**	**255.255.255.192**	**192.168.0.65**
PC-A	NIC	**192.168.0.62**	**255.255.255.192**	**192.168.0.1**
PC-B	NIC	**192.168.0.126**	**255.255.255.192**	**192.168.0.65**
ISPRouter	G0/0	209.165.200.225	255.255.255.224	N/A
	S0/1/0	209.165.201.1	255.255.255.252	
ISPSwitch	VLAN1	209.165.200.226	255.255.255.224	209.165.200.225
ISP Workstation	NIC	209.165.200.235	255.255.255.224	209.165.200.225
ISP Server	NIC	209.165.200.240	255.255.255.224	209.165.200.225

4,5,6. Determine Network, Broadcast and Usable Host IP Addresses

Subnet #		Net Address	1st Usable Address	Last Usable Address	Broadcast Address	Subnet Mask
LAN-A		192.168.0.0	192.168.0.1	192.168.0.62	192.168.0.63	255.255.255.192
LAN-B		192.168.0.64	192.168.0.65	192.168.0.126	192.168.0.127	255.255.255.193
	3	192.168.0.128	192.168.0.129	192.168.0.190	192.168.0.191	255.255.255.194
	4	192.168.0.192	192.168.0.193	192.168.0.254	192.168.0.255	255.255.255.195

MORE QUESTIONS:

How many host addresses are needed in the largest required subnet?	50 subnets
What is the minimum number of subnets required?	4 hosts
The network that you are tasked to subnet is 192.168.0.0/24. What is the /24 subnet mask in binary?	**11111111.11111111.11111111.00000000**
In the network mask, what do the ones represent?	network portion
In the network mask, what do the zeros represent?	host portion

1) (/25) 11111111.11111111.11111111.**1**0000000		
Dotted decimal subnet mask equivalent:	**255.255.255.127**	
Number of subnets?	**=(2^S)**	**2**
Number of hosts?	**=(2^H)- 2**	**126**
2) (/26) 11111111.11111111.11111111.**11**000000		
Dotted decimal subnet mask equivalent:	**255.255.255.192**	
Number of subnets?	**=(2^S)**	**4**
Number of hosts?	**=(2^H)- 2**	**62**
3) (/27) 11111111.11111111.11111111.**111**00000		
Dotted decimal subnet mask equivalent:	**255.255.255.224**	
Number of subnets?	**=(2^S)**	**8**
Number of hosts?	**=(2^H)- 2**	**30**
4) (/28) 11111111.11111111.11111111.**1111**0000		
Dotted decimal subnet mask equivalent:	**255.255.255.240**	
Number of subnets?	**=(2^S)**	**16**
Number of hosts?	**=(2^H)- 2**	**14**
5) (/29) 11111111.11111111.11111111.**11111**000		
Dotted decimal subnet mask equivalent:	**255.255.255.248**	
Number of subnets?	**=(2^S)**	**32**
Number of hosts?	**=(2^H)- 2**	**6**
6) (/30) 11111111.11111111.11111111.**111111**00		
Dotted decimal subnet mask equivalent:	**255.255.255.252**	
Number of subnets?	**=(2^S)**	**64**
Number of hosts?	**=(2^H)- 2**	**2**
which subnet masks meet the required number of minimum host addresses?	**1)2)**	
which subnet masks meets the minimum number of subnets required?	**2)3)4)5)6)**	

Subnet Address	Prefix	Subnet Mask
192.168.0.0	/28	255.255.255.192
192.168.0.64	/28	255.255.255.192
192.168.0.128	/28	255.255.255.192
192.168.0.192	/28	255.255.255.192