Question Completion Status:

Take Test: Subnetting Assignment v1.0g

Test Information

Description

SUBNET MASK AND RANGE CALCULATION EXERCISE for MIS 4477
By Jake Messinger

Instructions

An Internet Provider has control of the class B address space 129.7.0.0/16. The address range needs to be broken down into smaller subnets for several different customers. Listed below are the first 10 clients and their immediate needs.

You will first need to rank each company based on their projected growth needs and do them in that order, in other words, fill out the Subnet table from largest company to smallest. You will need to determine the size of the subnet block needed for each customer. Determine the netmask (slash, binary and decimal) Round up when you are calculating the projected needs. Remember to account for the "gateway" address on each network as a separate routing device outside of the needs calculation. In other words, don't count the gateway router in your answer, only count it in your calculation to determine block size.

When determining the Gateway address, always choose the FIRST available usable IP address of each subnet as the gateway, not a random ip address within the range and not the last IP address like they do oh the UH networks. Also do NOT use the network number as this address can't be used for any hosts in a subnet.

Show your work by entering computations and notes on the following pages in column 3. YOU MUST fill in ALL the answers on all the following questions and fill in ALL the blocks to get proper credit.

Map of Class B 129.7.0.0/16 (broken down into chunks of 16 for readability).

You will need to go back and forth between the next few questions answering each part and then fill in the chart on the following page.

Multiple Attempts: This test allows 2 attempts. This is attempt number 1.

Force Completion: This test can be saved and resumed later.

QUESTION 1

10 points Saved

Use this chart along with the next 10 questions to allocate netblock space to each entity.

Fill in each block with the unique code corresponding to the Company Name:

M=Myspacebook.com
A=Adjecta Technologies
J= Japaneiros
C=Cougar Town
G=GoMommy
S=Spambot USA
T=TinyCo, Inc
B=AbraCadabra Magic
N=Nothing But Net
2=2 to the 8th Power Co

IMPORTANT: Any block that is NOT used in this form, should be filled in with a 0 (zero) to show that it wasn't needed. ALL BLOCKS must have an answer in them for proper credit.IF YOU LEAVE ANY BOX BLANK, IT WILL LOWER THE SCORE.

Map of Netblock 129.7.0.0.0/22 (broken down into blocks of 16 addresses each.

Class C	0-15	16-31	32-47	48-63	64-79	80-95	96-111	112-127	128-143	144-159	160-175	176-191	192-207	208-223	224-239	240-255
129.7.0.0	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
129.7.1.0	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
129.7.2.0	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
129.7.3.0	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
129.7.4.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
129.7.5.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
129.7.6.0	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
129.7.7.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
129.7.8.0	A	A	A	A	A	A	A	A	S	S	S	S	B	B	B	B
129.7.9.0	G	G	J	T	0	0	0	0	0	0	0	0	0	0	0	0
129.7.10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129.7.11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(truncated)

QUESTION 2

9 points Saved

Myspacebook.com needs 480 addresses, not including a router, with 25% growth

Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Company Ranking by needs (1 to 10, 1=most IPs needed)	1	1st rank ip needs
Projected IP Address Needs (Not including the gateway)	600	480x1.25=600
Binary Netmask	.11111111 .11111111 .11111100 00000000	600+3=603, 2^(10)=1(
Decimal Netmask	.255 .255 .252 0	binary to decimal
Network address and CIDR / size	129.7.0 0 /22	First number in the blo
Broadcast Address	129.7.3 255	Last number in the blo
Router Address (use 1st available)	129.7.0 1	Second address in the
Range of addresses for hosts	129.7.0 2 to 129.7.3 .254	Addresses between ro
Maximum # of Hosts in this block (not including the gateway router)	1021	1024-3=1021
Unused(wasted) # of addresses	421	1021-600=421

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

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9 points Saved

Question Completion Status:

Adjecta Technologies (needs 50 addresses with a 25% growth)
Fill in the table below and show your work OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work Notes
Company Ranking by needs (1 greatest to 10 least)	5	5th rank ip needs
Projected IP Address Needs (Not including the gateway)	63	50x1.25=62.5=>63
Binary Netmask	11111111 . 11111111 . 11111111 10000000	62.5+3=66, 2^(7)=128
Decimal Netmask	255 . 255 . 255 . 128	256-128=128
Network address AND CIDR slash notation	129.7. 8 . 0 / 25	First address in the blo
Broadcast Address	129.7. 8 . 127	Last address in the blo
Router Address (use 1st available)	129.7. 8 . 1	Second address in the
Range of addresses for hosts	129.7. 8 . 2 to 129.7. 8 . 126	Addresses between ro
Maximum # of Hosts in this block (not including the gateway router)	125	128-3=125
Unused/wasted # of addresses	62	125-63=62

QUESTION 4 9 points Saved

Japaneiro's needs 5 addresses, not including the gateway, with a 25% projected growth.
Fill in the table below and show your work OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Ranking this Company (1 to 10)	9	9th rank ip needs
Projected IP Address Needs (Not including the gateway)	7	5x1.25=6.25=>7
Binary Netmask	11111111 . 11111111 . 11111111 . 11110000	7+3=10, 2^4=16
Decimal Netmask	255 . 255 . 255 . 240	binary to decimal
Network address AND CIDR slash notation	129.7. 9 . 32 / 28	First address in the bloc
Broadcast Address	129.7. 9 . 47	Last address in the bloc
Router Address (use 1st available)	129.7. 9 . 33	Second address in the b
Range of addresses for hosts	129.7. 9 . 34 to 129.7. 9 . 46	Addresses between rou
Max # of Hosts in this block (not including the gateway)	13	16-3=13
Unused # of addresses	6	13-7=6

QUESTION 5 9 points Saved

Cougar Town needs 120 addresses, not including the gateway, with a 25% projected growth.
Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Ranking this Company by needs (1 to 10)	4	4th rank ip needs
Projected IP Address Needs (Not including the gateway)	150	120x1.25=150
Binary Netmask	11111111 . 11111111 . 11111111 . 00000000	150+3=153, 2^(8)=256
Decimal Netmask	255 . 255 . 255 . 0	binary to decimal
Network address AND CIDR slash notation	129.7. 7 . 0 / 24	First address in the blo
Broadcast Address	129.7. 7 . 255	Last address in the blo
Router Address (use 1st available)	129.7. 7 . 1	Second address in the
Range of addresses for hosts	129.7. 7 . 2 to 129.7. 7 . 254	Addresses between ro
Maximum # of Hosts in this block (not including the gateway)	253	256-3=253
Unused # of addresses	103	253-150=103

QUESTION 6 9 points Saved

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

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Question Completion Status:

GoMommy needs 12 addresses, not including the gateway, with a 25% projected growth.
Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Company Ranking by needs (1 to 10)	8	8th rank ip needs
Projected IP Address Needs (Not including the gateway)	15	12x1.125=15
Binary Netmask	11111111 . 11111111 . 11111111 . 11100000	15+3=18, 2^5=32
Decimal Netmask	255 . 255 . 255 . 224	binary to decimal
Network address AND CIDR slash notation	129.7. 9 . 0 / 27	First address in the blc
Broadcast Address	129.7. 9 . 31	Last address in the blc
Router Address (use 1st available)	129.7. 9 . 1	Second address in the
Range of addresses for hosts	129.7. 9 . 2 to 129.7. 9 . 30	Addresses between ro
Maximum # of Hosts in this block (not including the gateway)	29	32-3=29
Unused # of addresses in this block	14	29-15=14

QUESTION 7 9 points Saved

Spambot USA needs 45 addresses with a 25% growth.
Fill in the table below and show your work OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work Notes
Ranking by needs (1 to 10, 1=most IP's needed)	6	6th rank ip needs
Projected IP Address Needs (Not including the gateway)	57	45x1.25=56.25=>57
Binary Netmask	11111111 . 11111111 . 11111111 . 11000000	57+3=60, 2^6=64
Decimal Netmask	255 . 255 . 255 . 192	binary to decimal
Network address AND CIDR slash notation	129.7. 8 . 128 / 26	First address in the blc
Broadcast Address	129.7. 8 . 191	Last address in the blc
Router Address (use 1st available)	129.7. 8 . 129	Second address in the
Range of addresses for hosts	129.7. 8 . 130 to 129.7. 8 . 190	Addresses between ro
Maximum # of Hosts in this block (not including the gateway router)	61	64-3=61
Unused/wasted # of addresses	4	61-57=4

QUESTION 8 9 points Saved

Tiny Co needs 3 addresses, not including the gateway, with a 25% projected growth.
Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Ranking this Company by needs (1 to 10)	10	10th rank ip needs
Projected IP Address Needs (Not including the gateway)	4	3x1.25=3.75=>4
Binary Netmask	11111111 . 11111111 . 11111111 . 11111000	4+3=7, 2^3=8
Decimal Netmask	255 . 255 . 255 . 248	binary to decimal
Network address AND CIDR slash notation	129.7. 9 . 48 / 29	First address in the blc
Broadcast Address	129.7. 9 . 63	Last address in the blc
Router Address (use 1st available)	129.7. 9 . 49	Second address in the
Range of addresses for hosts	129.7. 9 . 50 to 129.7. 9 . 62	Addresses between ro
Maximum # of Hosts in this block (not including the gateway)	5	8-3=5
Unused # of addresses in this block	1	5-4=1

QUESTION 9 9 points Saved

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Question Completion Status:

Abra Cadabra Magic needs 27 addresses with a 25% growth.
Fill in the table below and show your work OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work Notes
Ranking by needs (1 to 10, 1=most IP's needed)	7	7th rank ip needs
Projected IP Address Needs (Not including the gateway)	34	27x1.25=33.75=>34
Binary Netmask	11111111 . 11111111 . 11111111 . 11000000	34+3=37, 2^6=64
Decimal Netmask	255 . 255 . 255 . 192	binary to decimal
Network address AND CIDR slash notation	129.7. 8 . 192 / 26	First address in the blo
Broadcast Address	129.7. 8 . 255	Last address in the blo
Router Address (use 1st available)	129.7. 8 . 193	Second address in the
Range of addresses for hosts	129.7. 8 . 194 to 129.7. 8 . 254	Addresses between ro
Maximum # of Hosts in this block (not including the gateway router)	61	64-3=61
Unused/wasted # of addresses	27	61-34=27

QUESTION 10 9 points Saved

NothingBut.net needs 200 addresses, not including the gateway, with a 25% projected growth.
Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Ranking this Company by needs (1 to 10)	3	3rd rank ip needs
Projected IP Address Needs (Not including the gateway)	250	200x1.25=250
Binary Netmask	11111111 . 11111111 . 11111111 . 00000000	250+3=253, 2^(8)=256
Decimal Netmask	255 . 255 . 255 . 0	binary to decimal
Network address AND CIDR slash notation	129.7. 6 . 0 / 24	First address in the blo
Broadcast Address	129.7. 6 . 255	Last address in the blo
Router Address (use 1st available)	129.7. 6 . 1	Second address in the
Range of addresses for hosts	129.7. 6 . 2 to 129.7. 6 . 254	Addresses between ro
Maximum # of Hosts in this block (not including the gateway)	253	256-3=253
Unused # of addresses	3	253-250=3

QUESTION 11 9 points Saved

2toThe8th Power Co needs 256 addresses, not including a router, with 25% growth
Fill in the table below and show your work in the 3rd column OR describe how you got the answer. DO NOT leave the 3rd column blank, even if how you got the answer is obvious. Describe in words what you did.

Question	Answer	Work/Notes
Company Ranking by needs (1 to 10, 1=most IPs needed)	2	2nd rank ip needs
Projected IP Address Needs (Not including the gateway)	320	256x1.25=320
Binary Netmask	11111111 . 11111111 . 11111110 . 00000000	320+3=323, 2^(9)=512
Decimal Netmask	255 . 255 . 254 . 0	256-2=254
Network address and CIDR / size	129.7. 4 . 0 / 23	First number in the blo
Broadcast Address	129.7. 5 . 255	Last number in the blo
Router Address (use 1st available)	129.7. 4 . 1	Second address in the
Range of addresses for hosts	129.7. 4 . 2 to 129.7. 5 . 254	Addresses between ro
Maximum # of Hosts in this block (not including the gateway router)	509	512-3=509
Unused(wasted) # of addresses	189	509-320=189

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

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