APPENDIX G

Practice for Chapter 19: Subnet Design

This appendix exists as two halves to match the two major sections of the chapter. The first half lists mask design problems, and then the answers to those problems. The second half lists problems where you need to find the subnet ID, but with less than 8 subnet bits and with more than 8 subnet bits.

To solve these problems, use the processes explained in Chapter 19 of *Cisco CCENT/CCNA ICND1 100-101 Official Cert Guide*.

Mask Design Practice Problems

This section lists problems with a short set of requirements regarding how a particular classful network should be subnetted. The requirements include the classful network, the number of subnets the design must support, and the number of hosts in each subnet. For each problem, supply the following information:

- The minimum number of subnet and host bits needed in the mask to support the design requirements
- The dotted-decimal format mask(s) that meet the requirements
- The mask you would choose if the problem said to maximize the number of subnets
- The mask you would choose if the problem said to maximize the number of hosts per subnet

Also note that you should assume that the two special subnets in each network—the zero subnet and broadcast subnet—are allowed to be used for these questions.

When doing the problems, the information in Table G-1 can be helpful. Note that Appendix A, "Numeric Reference Tables," in the printed book, also includes this table.

Table G-1 Powers of 2

Number of Bits	2^X	Number of Bits	2^X	Number of Bits	2^X	Number of Bits	2^X
1	2	5	32	9	512	13	8192
2	4	6	64	10	1024	14	16,384
3	8	7	128	11	2048	15	32,768
4	16	8	256	12	4096	16	65,536

Find the key facts for these sets of requirements:

1. Network 10.0.0.0, need 50 subnets, need 200 hosts/subnet
2. Network 172.32.0.0, need 125 subnets, need 125 hosts/subnet
3. Network 192.168.44.0, need 15 subnets, need 6 hosts/subnet
4. Network 10.0.0.0, need 300 subnets, need 500 hosts/subnet
5. Network 172.32.0.0, need 500 subnets, need 15 hosts/subnet
6. Network 172.16.0.0, need 2000 subnets, need 2 hosts/subnet

Mask Design Answers

This section includes the answers to the six problems listed in this appendix. The answer section for each problem explains how to use the process outlined in Chapter 19, "Subnet Design," to find the answers.

Answer to Mask Design Problem 1

Problem 1 shows a Class A network, with 8 network bits, with a minimum of 6 subnet bits and 8 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.252.0.0 (maximizes the number of hosts per subnet)
- 255.254.0.0
- 255.255.0.0
- 255.255.128.0
- 255.255.192.0
- 255.255.224.0
- 255.255.240.0
- 255.255.248.0
- 255.255.252.0
- 255.255.254.0
- 255.255.255.0 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

NOTE The following explanation uses step numbers that match the process listed in Chapter 19 of *Cisco CCENT/CCNA ICND1 100-101 Official Cert Guide*, but only the steps from that process that apply to this problem. As a result, the step numbers in the explanation are not sequential.

Step 1. The question lists Class A network 10.0.0.0, so there are 8 network bits.

Step 2. The question states that 50 subnets are needed. A mask with 5 subnet bits supplies only 2^5 (32) subnets, but a mask with 6 subnet bits supplies 2^6 (64) subnets. So, the mask needs at least 6 subnet bits.

Step 3. The question states that 200 hosts are needed per subnet. A mask with 7 host bits supplies only $2^7 - 2$ (126) hosts per subnet, but a mask with 8 host bits supplies $2^8 - 2$ (254) hosts per subnet. So, the mask needs at least 8 host bits.

Step 6A. With N=8, a minimum S=6, and a minimum H=8, multiple masks exist. The first mask, with the minimum number of subnet bits, is /14, found by adding N (8) to the minimum value of S (6). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 8. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 8 = /24.

Step 6C. All masks between /14 and /24 also meet the requirements.

Answer to Mask Design Problem 2

Problem 2 shows a Class B network, with 16 network bits, with a minimum of 7 subnet bits and 7 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.255.254.0 (maximizes the number of hosts/subnet)
- 255.255.255.0
- 255.255.255.128 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

Step 1. The question lists Class B network 172.32.0.0, so there are 16 network bits.

Step 2. The question states that 125 subnets are needed. A mask with 6 subnet bits supplies only 2^6 (64) subnets, but a mask with 7 subnet bits supplies 2^7 (128) subnets. So, the mask needs at least 7 subnet bits.

Step 3. The question states that 125 hosts are needed per subnet. A mask with 6 host bits supplies only $2^6 - 2$ (62) hosts per subnet, but a mask with 7 host bits supplies $2^7 - 2$ (126) hosts per subnet. So, the mask needs at least 7 host bits.

Step 6A. With N=16, a minimum S=7, and a minimum H=7, multiple masks exist. The first mask, with the minimum number of subnet bits, is /23, found by adding N (16) to the minimum value of S (7). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 7. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 7 = /25.

Step 6C. All masks between /23 and /25 also meet the requirements (/23, /24, and /25).

Answer to Mask Design Problem 3

Problem 3 shows a Class C network, with 24 network bits, with a minimum of 4 subnet bits and 3 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.255.255.240 (maximizes the number of hosts/subnet)
- 255.255.255.248 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

Step 1. The question lists Class C network 192.168.44.0, so there are 24 network bits.

Step 2. The question states that 15 subnets are needed. A mask with 3 subnet bits supplies only 2^3 (8) subnets, but a mask with 4 subnet bits supplies 2^4 (16) subnets. So, the mask needs at least 4 subnet bits.

Step 3. The question states that 6 hosts are needed per subnet. A mask with 2 host bits supplies only $2^2 – 2$ (2) hosts per subnet, but a mask with 3 host bits supplies $2^3 – 2$ (6) hosts per subnet. So, the mask needs at least 3 host bits.

Step 6A. With N=24, a minimum S=4, and a minimum H=3, multiple masks exist. The first mask, with the minimum number of subnet bits, is /28, found by adding N (24) to the minimum value of S (4). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 3. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 3 = /29.

Step 6C. Only masks /28 and /29 meet the requirements.

Answer to Mask Design Problem 4

Problem 4 shows a Class A network, with 8 network bits, with a minimum of 9 subnet bits and 9 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.255.128.0 (maximizes the number of hosts/subnet)
- 255.255.192.0

- 255.255.224.0
- 255.255.240.0
- 255.255.248.0
- 255.255.252.0
- 255.255.254.0 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

Step 1. The question lists Class A network 10.0.0.0, so there are 8 network bits.

Step 2. The question states that 300 subnets are needed. A mask with 8 subnet bits supplies only 2^8 (256) subnets, but a mask with 9 subnet bits supplies 2^9 (512) subnets. So, the mask needs at least 9 subnet bits.

Step 3. The question states that 500 hosts are needed per subnet. A mask with 8 host bits supplies only $2^8 - 2$ (254) hosts per subnet, but a mask with 9 host bits supplies $2^9 - 2$ (510) hosts per subnet. So, the mask needs at least 9 host bits.

Step 6A. With N=8, a minimum S=9, and a minimum H=9, multiple masks exist. The first mask, with the minimum number of subnet bits, is /17, found by adding N (8) to the minimum value of S (9). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 9. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 9 = /23.

Step 6C. All masks between /17 and /23 also meet the requirements (/17, /18, /19, /20, /21, /22, /23).

Answer to Mask Design Problem 5

Problem 5 shows a Class B network, with 16 network bits, with a minimum of 9 subnet bits and 5 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.255.255.128 (maximizes the number of hosts/subnet)
- 255.255.255.192
- 255.255.255.224 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

Step 1. The question lists Class B network 172.32.0.0, so there are 16 network bits.

Step 2. The question states that 500 subnets are needed. A mask with 8 subnet bits supplies only 2^8 (256) subnets, but a mask with 9 subnet bits supplies 2^9 (512) subnets. So, the mask needs at least 9 subnet bits.

Step 3. The question states that 15 hosts are needed per subnet. A mask with 4 host bits supplies only $2^4 - 2$ (14) hosts per subnet, but a mask with 5 host bits supplies $2^5 - 2$ (30) hosts per subnet. So, the mask needs at least 5 host bits.

Step 6A. With N=16, a minimum S=9, and a minimum H=5, multiple masks exist. The first mask, with the minimum number of subnet bits, is /25, found by adding N (16) to the minimum value of S (9). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 5. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 5 = /27.

Step 6C. All masks between /25 and /27 also meet the requirements (/25, /26, /27).

Answer to Mask Design Problem 6

Problem 6 shows a Class B network, with 16 network bits, with a minimum of 11 subnet bits and 2 host bits to meet the required number of subnets and hosts/subnet. The following masks all meet the requirements in this problem, with the masks that maximize the number of hosts/subnet and the number of subnets noted:

- 255.255.255.224 (maximizes the number of hosts/subnet)
- 255.255.255.240
- 255.255.255.248
- 255.255.255.252 (maximizes the number of subnets)

As for the process to find the answers, the following list explains the details:

Step 1. The question lists Class B network 172.16.0.0, so there are 16 network bits.

Step 2. The question states that 2000 subnets are needed. A mask with 10 subnet bits supplies only 2^{10} (1024) subnets, but a mask with 11 subnet bits supplies 2^{11} (2048) subnets. So, the mask needs at least 11 subnet bits.

Step 3. The question states that 2 hosts are needed per subnet. A mask with 2 host bits supplies $2^2 - 2$ (2) hosts per subnet. So, the mask needs at least 2 host bits.

Step 6A. With N=16, a minimum S=11, and a minimum H=2, multiple masks exist. The first mask, with the minimum number of subnet bits, is /27, found by adding N (16) to the minimum value of S (11). This mask maximizes the number of host bits and therefore maximizes the number of hosts/subnet.

Step 6B. The minimum value of H, the number of host bits, is 2. So, the mask with the fewest H bits, maximizing the number of subnets, is 32 – H = 32 – 2 = /30.

Step 6C. All masks between /27 and /30 also meet the requirements (/27, /28, /29, /30).

Practice Finding All Subnet IDs

The remainder of this appendix lists two sets of problems. Both problem sets list an IP network and mask; your job is to list all the subnet IDs for each network/mask combination. The first problem set includes problems that happen to have 8 or fewer subnet bits, and the second problem set includes problems that happen to have more than 8 subnet bits. In particular, for each problem, find the following:

- All subnet numbers
- The subnet that is the zero subnet
- The subnet that is the broadcast subnet

To find this information, you can use the processes explained in Chapter 19 of the ICND1 book.

Find Subnet IDs, Problem Set 1: 8 or Fewer Subnet Bits

The problems, which consist of a classful network and static-length mask, are as follows:

1. 172.32.0.0/22
2. 200.1.2.0/28
3. 10.0.0.0/15
4. 172.20.0.0/24

Find Subnet IDs, Problem Set 2: More Than 8 Subnet Bits

The problems, which consist of a classful network and static-length mask, are as follows:

1. 172.32.0.0/25
2. 10.0.0.0/21

Answers to Find Subnet IDs, Problem Set 1

This section includes the answers to the four problems listed in Problem Set 1.

Problem Set 1, Answer 1: 172.32.0.0/22

The answer is as follows:

- 172.32.0.0 (zero subnet)
- 172.32.4.0
- 172.32.8.0
- 172.32.12.0
- 172.32.16.0
- 172.32.20.0
- 172.32.24.0

  (Skipping many subnets; each new subnet is the same as the previous subnet, after adding 4 to the third octet.)

- 172.32.248.0
- 172.32.252.0 (broadcast subnet)

The process to find all subnets depends on three key pieces of information:

- The mask has fewer than 8 subnet bits (6 bits), because the network is a Class B network (16 network bits), and the mask has 22 binary 1s in it—implying 10 host bits and leaving 6 subnet bits.
- The mask in dotted-decimal format is 255.255.252.0. The interesting octet is the third octet because the subnet bits are all in the third octet.
- Each successive subnet number is 4 higher than the previous subnet number, in the interesting octet, because the magic number is 256 – 252 = 4.

As a result, in this case, all the subnets begin with 172.32, have a multiple of 4 in the third octet, and end in 0.

Table G-2 shows the results of the various steps of the process, as outlined in Chapter 19.

Table G-2 8 or Fewer Subnet Bits, Question 1: Answer Table

	Octet 1	Octet 2	Octet 3	Octet 4
Subnet Mask (Step 1)	255	255	252	0
Magic Number (Step 3)			256 – 252 = 4	
Zero Subnet Number (Step 4)	172	32	0	0
Next Subnet (Step 5)	172	32	4	0
Next Subnet (Step 5)	172	32	8	0
Next Subnet (Step 5)	172	32	12	0
Next Subnet (Step 5)	172	32	16	0
(You might need many more such rows)	172	32	X	0
Next Subnet	172	32	244	0
Next Subnet (Step 5)	172	32	248	0
Broadcast Subnet (Step 6)	172	32	252	0
Out of Range—Stop Process (Step 6)			256	

Problem Set 1, Answer 2: 200.1.2.0/28

The answer is as follows:

- 200.1.2.0 (zero subnet)
- 200.1.2.16
- 200.1.2.32

- 200.1.2.48
- 200.1.2.64
- 200.1.2.80

  (Skipping many subnets; each new subnet is the same as the previous subnet, after adding 16 to the fourth octet.)

- 200.1.2.224
- 200.1.2.240 (broadcast subnet)

The process to find all subnets depends on three key pieces of information, as follows:

- The mask has fewer than 8 subnet bits (4 bits), because the network is a Class C network (24 network bits), and the mask has 28 binary 1s in it, which implies 4 host bits and leaves 4 subnet bits.
- The mask in dotted-decimal format is 255.255.255.240. The interesting octet is the fourth octet, because all the subnet bits are in the fourth octet.
- Each successive subnet number is 16 higher than the previous subnet number, in the interesting octet, because the magic number is 256 – 240 = 16.

As a result, in this case, all the subnets begin with 200.1.2 and have a multiple of 16 in the fourth octet.

Table G-3 shows the results of the various steps of the process, as outlined in Chapter 19.

Table G-3 Problem Set 1, Question 2: Answer Table

	Octet 1	Octet 2	Octet 3	Octet 4
Subnet Mask (Step 1)	255	255	255	240
Magic Number (Step 3)				256 – 240 = 16
Zero Subnet Number (Step 4)	200	1	2	0
Next Subnet (Step 5)	200	1	2	16
Next Subnet (Step 5)	200	1	2	32
Next Subnet (Step 5)	200	1	2	48
(You might need many more such rows) (Step 5)	200	1	2	X
Next Subnet (Step 5)	200	1	2	224
Broadcast Subnet (Step 6)	200	1	2	240
Out of Range—Stop Process (Step 6)				256

Problem Set 1, Answer 3: 10.0.0.0/15

The answer is as follows:

- 10.0.0.0 (zero subnet)
- 10.2.0.0
- 10.4.0.0
- 10.6.0.0

  (Skipping many subnets; each new subnet is the same as the previous subnet, after adding 2 to the second octet.)

- 10.252.0.0
- 10.254.0.0 (broadcast subnet)

The process to find all subnets depends on three key pieces of information:

- The mask has fewer than 8 subnet bits (7 subnet bits), because the network is a Class A network (8 network bits), and the mask has 15 binary 1s in it, which implies 17 host bits and leaves 7 subnet bits.
- The mask in dotted-decimal format is 255.254.0.0. The interesting octet is the second octet, because all the subnet bits exist in the second octet.
- Each successive subnet number is 2 higher than the previous subnet number, in the interesting octet, because the magic number is 256 – 254 = 2.

As a result, in this case, all the subnets begin with 10, have a multiple of 2 in the second octet, and end in 0.0.

Table G-4 shows the results of the various steps of the process, as outlined in Chapter 19.

Table G-4 Problem Set 1, Question 3: Answer Table

	Octet 1	Octet 2	Octet 3	Octet 4
Subnet Mask (Step 1)	255	254	0	0
Magic Number (Step 3)		256 – 254 = 2		
Zero Subnet Number (Step 4)	10	0	0	0
Next Subnet (Step 5)	10	2	0	0
Next Subnet (Step 5)	10	4	0	0
Next Subnet (Step 5)	10	6	0	0
(You might need many more such rows) (Step 5)	10	X	0	0
Next Subnet (Step 5)	10	252	0	0
Broadcast Subnet (Step 6)	10	254	0	0
Out of Range—Stop Process (Step 6)		256		

Problem Set 1, Answer 4: 172.20.0.0/24

This problem has an 8-bit subnet field, meaning that 2^8, or 256, possible subnets exist. The following list shows some of the subnets, which should be enough to see the trends in how to find all subnet numbers:

- 172.20.0.0 (zero subnet)
- 172.20.1.0
- 172.20.2.0
- 172.20.3.0
- 172.20.4.0

  (Skipping many subnets; each new subnet is the same as the previous subnet, after adding 1 to the third octet.)

- 172.20.252.0
- 172.20.253.0
- 172.20.254.0
- 172.20.255.0 (broadcast subnet)

The process to find all subnets depends on three key pieces of information:

- The mask has exactly 8 subnet bits, specifically all bits in the third octet, making the third octet the interesting octet.
- The magic number is 256 – 255 = 1, because the mask's value in the interesting (third) octet is 255.
- Beginning with the network number of 172.20.0.0, which is the same value as the zero subnet, just add the magic number (1) in the interesting octet.

Essentially, you just count by 1 in the third octet until you reach the highest legal number (255). The first subnet, 172.20.0.0, is the zero subnet, and the last subnet, 172.20.255.0, is the broadcast subnet.

Answers to Find Subnet IDs, Problem Set 2

Problem Set 2, Answer 1: 172.32.0.0/25

This problem has a 9-bit subnet field, meaning that 2^9, or 512, possible subnets exist. The following list shows some of the subnets, which should be enough to see the trends in how to find all subnet numbers:

- 172.32.0.0 (zero subnet)
- 172.32.0.128
- 172.32.1.0
- 172.32.1.128
- 172.32.2.0
- 172.32.2.128

- 172.32.3.0
- 172.32.3.128

  (Skipping many subnets; the subnets occur in blocks of two, with either 0 or 128 in the fourth octet, with each successive block being one greater in the third octet.)

- 172.32.254.0
- 172.32.254.128
- 172.32.255.0
- 172.32.255.128 (broadcast subnet)

The process to find all subnets depends on three key pieces of information, as follows:

- The mask has more than 8 subnet bits (9 bits), because the network is a Class B network (16 network bits), and the mask has 25 binary 1s in it, which implies 7 host bits and leaves 9 subnet bits.
- Using the terminology in Chapter 19 of the ICND1 book, octet 4 is the interesting octet, where the counting occurs based on the magic number. Octet 3 is the "just left" octet, in which the process counts by 1, from 0 to 255.
- The magic number, which will be used to calculate each successive subnet number, is 256 – 128 = 128.

To calculate the first subnet block, use the same six-step process as used in the simpler problems that have 8 or fewer subnet bits. In this case, with only 1 subnet bit in octet 4, only two subnets exist in each subnet block. Table G-5 shows the steps as compared to the six-step process to find the subnets in a subnet block.

Table G-5 Creating the First Subnet Block

	Octet 1	Octet 2	Octet 3	Octet 4
Subnet Mask (Step 1)	255	255	255	128
Magic Number (Step 3)				256 – 128 = 128
Zero Subnet Number (Step 4)	172	32	0	0
Next Subnet (Step 5)	172	32	0	128
Step 6 Needs to Be Used Here (Sum of 256 in the 4th Octet)	172	32	0	256

The table represents the logic, but to make sure that the answer is clear, the first subnet block includes the following:

172.32.0.0

172.32.0.128

The next major task—to create subnet blocks for all possible values in the "just left" octet—completes the process. Essentially, create 256 blocks like the previous list. The first has a value of 0, in the "just left" octet; the next has a value of 1; the next, a value of 2; and so on, through a block that begins with 172.30.255. Figure G-1 shows the concept.

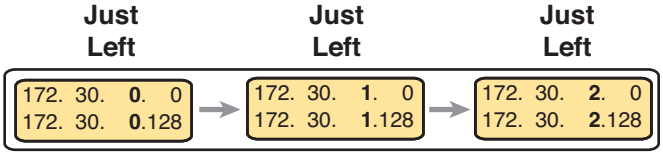


Figure G-1 *Creating Subnet Blocks by Adding 1 in the "Just Left" Octet*

Problem Set 2, Answer 2: 10.0.0.0/21

This problem has a 13-bit subnet field, meaning that 2^{13}, or 8192, possible subnets exist. The following list shows some of the subnets, which should be enough to see the trends in how to find all subnet numbers:

- 10.0.0.0 (zero subnet)
- 10.0.8.0
- 10.0.16.0
- 10.0.24.0

  (Skipping several subnets)

- 10.0.248.0
- 10.1.0.0
- 10.1.8.0
- 10.1.16.0

  (Skipping several subnets)

- 10.1.248.0
- 10.2.0.0
- 10.2.8.0
- 10.2.16.0

  (Skipping several subnets)

- 10.255.232.0
- 10.255.240.0
- 10.255.248.0 (broadcast subnet)

The process to find all subnets depends on three key pieces of information, as follows:

- The mask has more than 8 subnet bits (13 bits), because the network is a Class A network (8 network bits), and the mask has 21 binary 1s in it, which implies 11 host bits and leaves 13 subnet bits.

- Using the terminology in Chapter 19 of the ICND1 book, octet 3 is the interesting octet, where the counting occurs based on the magic number. Octet 2 is the "just left" octet, in which the process counts by 1, from 0 to 255.
- The magic number, which will be used to calculate each successive subnet number, is 256 – 248 = 8.

To calculate the first subnet block, use the same six-step process as used in the simpler problems that have 8 or fewer subnet bits. In this case, with 5 subnet bits in octet 3, 32 subnets exist in each subnet block. Table G-6 shows the steps as compared to the six-step process to find the subnets in a subnet block.

Table G-6 Creating the First Subnet Block

	Octet 1	Octet 2	Octet 3	Octet 4
Subnet Mask (Step 1)	255	255	248	0
Magic Number (Step 3)			256 – 248 = 8	
Zero Subnet Number (Step 4)	10	0	0	0
Next Subnet (Step 5)	10	0	8	0
(Skipping several subnets)	10	0	X	0
Next Subnet (Step 5)	10	0	248	0
Step 6 Needs to Be Used Here (Sum of 256 in the 3rd Octet)	10	0	256	0

The table represents the logic, but to make sure that the answer is clear, the first subnet block includes the following:

10.0.0.0
10.0.8.0
10.0.16.0
10.0.24.0
10.0.32.0
10.0.40.0
10.0.48.0
10.0.56.0
10.0.64.0
And so on…
10.0.248.0

The next major task—to create subnet blocks for all possible values in the "just left" octet—completes the process. Essentially, create 256 blocks like the previous list. The first has a value of 0, in the "just left" octet; the next has a value of 1; the next, a value of 2; and so on, through a block that begins with 10.255. Figure G-2 shows the concept.

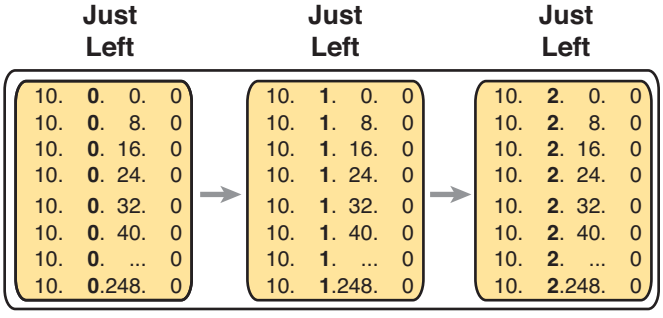


Figure G-2 *Creating Subnet Blocks by Adding 1 in the "Just Left" Octet*