

Subnetting A Exercises

Problem #1

Networks	2	4	8	16	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384	32,768	65,536	131,072	262,144	524,288	1,048,576	2,097,152	4,194,304		
Hosts	16,777,216	8,388,608	4,194,304	2,097,152	1,048,576	524,288	262,144	131,072	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512	256	128	64	32	16	8	4	
Mask Borrowed	128 1	192 2	224 3	240 4	248 5	252 6	254 7	255 8	128 9	192 10	224 11	240 12	248 13	252 14	254 15	255 16	128 9	192 10	224 11	240 12	248 13	252 14	254 15	255 16
	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1

Nets Needed: 500
 :Class: _____
 Default Mask: _____
 Custom Mask: _____
 Bits Borrowed: _____
 Subnets: _____
 Total Hosts: _____
 Usable Hosts: _____

Net	Hosts	Net	Usable	Broad
1	30k			
2	12k			
3	4k			
4	4k			
5	3k			
6	2k			
7	2k			
8	2k			
9	2k			
10	2k			
11	2k			
12	2k			
13	2k			
14	1k			
15	1k			
16	1k			
17	1k			
18	1k			
19	1k			
20	1k			
21	1k			
22	1k			
23	1k			
24	1k			
25	1k			
26	1k			
27	1k			
28	1k			
29	1k			
30	1k			
31	1k			

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Problem #1 - Answer

Networks	2	4	8	16	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384	32,768	65,536	131,072	262,144	524,288	1,048,576	2,097,152	4,194,304		
Hosts	16,777,216	8,388,608	4,194,304	2,097,152	1,048,576	524,288	262,144	131,072	65,536	32,768	16,384	8,192	4,096	2,048	1,024	512	256	128	64	32	16	8	4	
Mask Borrowed	128 1	192 2	224 3	240 4	248 5	252 6	254 7	255 8	128 9	192 10	224 11	240 12	248 13	252 14	254 15	255 16	128 9	192 10	224 11	240 12	248 13	252 14	254 15	255 16
10 .	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1

Net	Hosts	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	30k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	12k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	4k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	4k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	3k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	2k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
31	1k	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Nets Needed:	500
Class:	A
Default Mask:	255.0.0.0
Custom Mask:	255.255.128.0
Bits Borrowed:	9
Subnets:	512
Total Hosts:	32,768
Usable Hosts:	32,766

First Octet Omitted to Save Space

Net	Usable	Broad
0.0.0	0.0.1 - 10.0.127.254	0.127.255
0.128.0	0.128.1 - 0.255.254	0.255.255
1.0.0	1.0.1 - 1.127.254	1.127.255
1.128.0	1.128.1 - 1.255.254	1.255.255
2.0.0	2.0.1 - 2.127.254	2.127.255
2.128.0	2.128.1 - 2.255.254	2.255.255
3.0.0	3.0.1 - 3.127.254	3.127.255
3.128.0	3.128.1 - 3.255.254	3.255.255
4.0.0	4.0.1 - 4.127.254	4.127.255
4.128.0	4.128.1 - 4.255.254	4.255.255
5.0.0	5.0.1 - 5.127.254	5.127.255
5.128.0	5.128.1 - 5.255.254	5.255.255
6.0.0	6.0.1 - 6.127.254	6.127.255
6.128.0	6.128.1 - 6.255.254	6.255.255
7.0.0	7.0.1 - 7.127.254	7.127.255
7.128.0	7.128.1 - 7.255.254	7.255.255
8.0.0	8.0.1 - 8.127.254	8.127.255
8.128.0	8.128.1 - 8.255.254	8.255.255
9.0.0	9.0.1 - 9.127.254	9.127.255
9.128.0	9.128.1 - 9.255.254	9.255.255
10.0.0	10.0.1 - 10.127.254	10.127.255
10.128.0	10.128.1 - 10.255.254	10.255.255
11.0.0	11.0.1 - 11.127.254	11.127.255
11.128.0	11.128.1 - 11.255.254	11.255.255
12.0.0	12.0.1 - 12.127.254	12.127.255
12.128.0	12.128.1 - 12.255.254	12.255.255
13.0.0	13.0.1 - 13.127.254	13.127.255
13.128.0	13.128.1 - 13.255.254	13.255.255
14.0.0	14.0.1 - 14.127.254	14.127.255
14.128.0	14.128.1 - 14.255.254	14.255.255
15.0.0	15.0.1 - 15.127.254	15.127.255