Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
200	8	193	129	254	128.10.193.129

200 Subnets							
Network ID				Subnet		Host	
NNNN NNNN		NNNN NNNN		SSSS SSSS		HHHH HHHH	
1000 0000		0000 1010		1100 0001		1000 0001	
128		10		193		129	

128	64	32	16	8	4	2	1
1	1	0	0	0	0	0	1
1	0	0	0	0	0	0	1

Subnet Mask			
Network ID		Subnet	Host
1111 1111	1111 1111	1111 1111	0000 0000
255	255	255	0

124

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
120	7	119	68	510	128.10.238.68

(handwritten: 68)

120 Subnets

Network ID		Subnet/Host	Host
NNNN NNNN	NNNN NNNN	SSSS SSSH	HHHH HHHH
1000 0000	0000 1010	1110 1110	0100 0100
128	10	238	68

256	128	64	32	16	8	4	2	1
		1	1	1	0	1	1	1
0	0	1	0	0	0	1	0	0

Subnet Mask

Network ID		Subnet/Host	Host
1111 1111	1111 1111	1111 1110	0000 0000
255	255	254	0

(handwritten: /23)

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

subnet mask into binary and host into binary

(handwritten left margin:)
119
64
55
32
23
16
7

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
120	7	105	352	510	128.10.216.96

120 Subnets

Network ID		Subnet/Host	Host
NNNN NNNN	NNNN NNNN	SSSS SSSH	HHHH HHHH
1000 0000	0000 1010	1101 0011	0110 0000
128	10	211	96

256	128	64	32	16	8	4	2	1
■	■	1	1	0	1	0	0	1
1	0	1	1	0	0	0	0	0

Subnet Mask

Network ID	Subnet/Host	Host
1111 1111	1111 1111	1111 1110	0000 0000
255	255	254	0

# Of Bits	Max # Of Subnets
2	$2^2 - 2 = 2$
3	$2^3 - 2 = 6$
4	$2^4 - 2 = 14$
5	$2^5 - 2 = 30$
6	$2^6 - 2 = 62$
7	$2^7 - 2 = 126$
8	$2^8 - 2 = 254$
9	$2^9 - 2 = 510$
10	$2^{10} - 2 = 1022$
11	$2^{11} - 2 = 2046$
12	$2^{12} - 2 = 4094$
13	$2^{13} - 2 = 8190$
14	$2^{14} - 2 = 16382$

105
64
41
32
9

352
256
96
64
32
/23

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
58	*6*	45	98	*1022*	*128.10.180.98*

58 Subnets					
Network ID			Subnet/Host		Host
NNNN NNNN	NNNN NNNN	SSSS SSHH		HHHH HHHH	
1000 0000	0000 1010	*101* 0100		0110 0010	
128	10	*180*		*98*	

512	256	128	64	32	16	8	4	2	1
■	■	■	■	*1*	*0*	*1*	*1*	*0*	*1*
0	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*1*	*0*

Subnet Mask			
Network ID		Subnet/Host	Host
1111 1111	1111 1111	1111 1100	0000 0000
255	255	252	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Handwritten (left margin):
$$\begin{array}{r} 45 \\ 32 \\ \hline 13 \\ 8 \\ \hline 5 \end{array}$$

Handwritten (right margin):
$$\begin{array}{r} 98 \\ 64 \\ \hline 34 \\ 32 \\ \hline 2 \end{array}$$

/22

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
58	6	48	598	1022	128.10.194.86

58 Subnets					
Network ID		**Subnet/Host**	**Host**		
NNNN NNNN	NNNN NNNN	SSSS SSHH	HHHH HHHH		
1000 0000	0000 1010	1100 0010	0101 0110		
128	10	194	86		

512	256	128	64	32	16	8	4	2	1
■	■	■	■	1	1	0	0	0	0
1	0	0	1	0	1	0	1	1	0

Subnet Mask			
Network ID		**Subnet/Host**	**Host**
1111 1111	1111 1111	1111 1100	0000 0000
255	255	252	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Handwritten notes (left margin):
48
32
16

Handwritten notes (right margin):
598
512
86
64
22
16
6

122

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
29	*5*	28	59	*2046*	*128.10.224.59*

29 Subnets					
Network ID		Subnet/Host		Host	
NNNN NNNN	NNNN NNNN	SSSS SHHH		HHHH HHHH	
1000 0000	0000 1010	*1110 0000*		*0011 1011*	
128	10	*224*		*59*	

1024	512	256	128	64	32	16	8	4	2	1
						1	*1*	*1*	*0*	*0*
0	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*1*	*1*

Subnet Mask			
Network ID		Subnet/Host	Host
1111 1111	1111 1111	1111 1000	0000 0000
255	255	248	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Handwritten left margin:
28
16
―
12

Handwritten right margin:
59
32
―
27
16
―
11
8
―
3

Working With Class B Address 128.10.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	128.10.x.y
29	5	25	1069	2046	128.10.204.45

29 Subnets					
Network ID		Subnet/Host		Host	
NNNN NNNN	NNNN NNNN	SSSS SHHH		HHHH HHHH	
1000 0000	0000 1010	1100 1100		0010 1101	
128	10	204		45	

1024	512	256	128	64	32	16	8	4	2	1
						1	1	0	0	1
1	0	0	0	0	1	0	1	1	0	1

Subnet Mask			
Network ID		Subnet/Host	Host
1111 1111	1111 1111	1111 1000	0000 0000
255	255	248	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Handwritten notes (left):
25
16
―――
9

Handwritten notes (right):
45 1069
1024
―――――
45
32
―――
13
8
―――
5

1953
1024
―――
929
512
―――
417
256
―――
161
128
―――
33
32
―――
1

Working With Class A Address 9.0.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	~~128.10.x.y~~
2000	11	1953	1119	8190	9.244.36.95

1119
1024
―――
95
64
―――
31

2000 Subnets

Network ID	Subnet	Subnet/Host	Host
NNNN NNNN	SSSS SSSS	SSSH HHHH	HHHH HHHH
0000 1001	1111 0100	0010 0100	0101 1111
9	244	36	. 95

4096	2048	1024	512	256	128	64	32	16	8	4	2	1
■	■	1	1	1	1	0	1	0	0	0	0	1
0	0	1	0	0	0	1	0	1	1	1	1	1

Subnet Mask

Network ID	Subnet	Subnet/Host	Host
1111 1111	1111 1111	1110 0000	0000 0000
255	255	224	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

Working With Class A Address 9.0.0.0

Max # Of Subnets	Min # Of Bits	Subnet #	Host #	Max # Of Hosts	
2000	11	1949	704	8190	9.243.162.192

Handwritten (left): 1949 / 1024 / — / 925 / 512 / — / 413 / 256 / — / 157 / 128 / — / 29 / 16 / — / 13

Handwritten (right): 704 / 512 / — / 192 / 128 / — / 64

2000 Subnets

Network ID	Subnet	Subnet/Host	Host
NNNN NNNN	SSSS SSSS	SSSH HHHH	HHHH HHHH
0000 1001	1111 0011	1010 0010	1100 0000
9	243	162	192

4096	2048	1024	512	256	128	64	32	16	8	4	2	1
■	■	1	1	1	1	0	0	1	1	1	0	1
0	0	0	1	0	1	1	0	0	0	0	0	0

Subnet Mask

Network ID	Subnet	Subnet/Host	Host
1111 1111	1111 1111	1110 0000	0000 0000
255	255	224	0

# Of Bits	Max # Of Subnets
2	$2^2-2 = 2$
3	$2^3-2 = 6$
4	$2^4-2 = 14$
5	$2^5-2 = 30$
6	$2^6-2 = 62$
7	$2^7-2 = 126$
8	$2^8-2 = 254$
9	$2^9-2 = 510$
10	$2^{10}-2 = 1022$
11	$2^{11}-2 = 2046$
12	$2^{12}-2 = 4094$
13	$2^{13}-2 = 8190$
14	$2^{14}-2 = 16382$

IP 132.194.215.96
SNM 255.255.248.0

1	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S	H	H	H	H	H	H	H	H	H	H	H
32,768	16,384	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1	16	8	4	2	1	1024	512	256	128	64	32	16	8	4	2	1
1	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	1	1	0	1	0	1	1	1	0	1	1	0	0	0	0	0

a) NETWORK # 33,986
b) SUBNET # 26
c) HOST # 1,888

IP   189.234.187.243

SNM   255.255.252.0

1	0	1	1	1	1	0	1	1	1	1	0	1	0	1	0	1	0	1	1	1	0	1	1	1	1	1	1	0	0	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	S	S	S	S	S	S	H	H	H	H	H	H	H	H	H	H

32768 16384 8192 4096 2048 1024 512 256 | 128 64 32 16 8 4 2 1 | 32 16 8 4 2 1 | 512 256 128 | 128 64 32 16 8 4 2 1

| 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |

NETWORK # 48,618

SUBNET # 46

HOST # 1,011

IP 85-128.230-201
SNM 255.255-128. 0

0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	1	1	0	1	1	0	0	1	0	0	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	N	N	N	N	N	N	N	S	S	S	S	S	S	S	S	H	H	H	H	H	H	H	H	H	H	H	H	H	H
128	64	32	16	8	4	2	1	256	128	64	32	16	8	4	2	1	16384	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
0	1	0	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	0	1	1	0	1	1	0	0	1	0	0	1

NETWORK #   85
SUBNET #   257
HOST #   26,313