IP Masking Table

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Mask	Prefix	# Host Bits	Total Addresses	DotDec Equiv
0.0.0.0	/0	32	4,294,967,296	
128.0.0.0	/1	31	2,147,483,648	128.0.0.0
192.0.0.0	/2	30	1,073,741,824	64.0.0.0
224.0.0.0	/3	29	536,870,912	32.0.0.0
240.0.0.0	/4	28	268,435,456	16.0.0.0
248.0.0.0	/5	27	134,217,728	8.0.0.0
252.0.0.0	/6	26	67,108,864	4.0.0.0
254.0.0.0	/7	25	33,554,432	2.0.0.0
255.0.0.0	**/8**	**24**	**16,777,216**	**1.0.0.0**
255.128.0.0	/9	23	8,388,608	128.0.0
255.192.0.0	/10	22	4,194,304	64.0.0
255.224.0.0	/11	21	2,097,152	32.0.0
255.240.0.0	/12	20	1,048,576	16.0.0
255.248.0.0	/13	19	524,288	8.0.0
255.252.0.0	/14	18	262,144	4.0.0
255.254.0.0	/15	17	131,072	2.0.0
255.255.0.0	**/16**	**16**	**65,536**	**1.0.0**
255.255.128.0	/17	15	32,768	128.0
255.255.192.0	/18	14	16,384	64.0
255.255.224.0	/19	13	8,192	32.0
255.255.240.0	/20	12	4,096	16.0
255.255.248.0	/21	11	2,048	8.0
255.255.252.0	/22	10	1,024	4.0
255.255.254.0	/23	9	512	2.0
255.255.255.0	**/24**	**8**	**256**	**1.0**
255.255.255.128	/25	7	128	128
255.255.255.192	/26	6	64	64
255.255.255.224	/27	5	32	32
255.255.255.240	/28	4	16	16
255.255.255.248	/29	3	8	8
255.255.255.252	/30	2	4	4
255.255.255.254	/31	1	2	2
255.255.255.255	/32	0	1	1

Subnetting Example:

You're given a /20 and will give out /23's. The numerical difference between these two prefixes determines the number of subnet bits, therefore the number of subnets (2 raised to the #bits power) So, 23-20 = 3 subnet bits, $2^3 = 8$, so you have 8 subnets available.

The mask you give out determines the size of the subnet. /23 --> 512 total addresses per subnet (510 assignable to hosts). The dotted decimal equivalent of 512 is 2.0, so all subnets must begin on a multiple of 2.0.

Rule 1: All blocks of addresses must be a power of two in size.
Rule 2: Each block of addresses must *start* on a multiple of the block size.