Subnetting Quick Reference IPv4

Bits	* 128	* 64	* 32	* 16	* 8	* 4	* 2	* 1
Borrowed	1	2	3	4	5	6	7	8
Subnets	2	4	8	16	32	64	128	
Hosts	128	64	32	16	8	4	2	

Class C Example:

192.168.10.0 255.255.255.0

Step 1: Calculate Custom Subnet Mask

Combined dec value of all bits borrowed
If borrowing, for example, 3 bits:
128 + 64 + 32 = 224

Custom subnet mask: 255.255.255.224

Step 2: 'Magic' Number

Dec value of end bit borrowed (in this case 3 bits – dec value 32) becomes the number of addresses per subnet, & the increment by which each subnet is divided.

Ex:
192.168.10.0
192.168.10.32
192.168.10.64
192.168.10.96
192.168.10.128
192.168.10.160
192.168.10.192
192.168.10.224

End result in this example is 32 addresses per subnet (30 useable) with a grand total of 8 subnets.

Subnet	Host Range	Broadcast
192.168.10.0	192.168.10.1-192.168.10.30	192.168.10.31
192.168.10.32	192.168.10.33-192.168.10.62	192.168.10.63
192.168.10.64	192.168.10.65-192.168.10.94	192.168.10.95
192.168.10.96	192.168.10.97-192.168.10.125	192.168.10.126
192.168.10.128	192.168.10.129-192.168.10.158	192.168.10.159
192.168.10.160	192.168.10.161-192.168.10.190	192.168.10.191
192.168.10.192	192.168.10.193-192.168.10.222	192.168.10.223
192.168.10.224	192.168.10.225-192.168.10.254	192.168.10.255