1)

192.168.1.0/24	New IP address: 11111111.11111111.11111111.11000000 255.255.255.192 192.168.1.0/26
2 ^ n >= 4 n = 2 8 – 2 = 6 2 ^ 6 = 64	
Range: 192.168.1.0 - 192.168.1.63 192.168.1.64 - 192.168.1.127 192.168.1.128 - 192.168.1.191 192.168.1.192 - 192.168.1.255	Usable range: 192.168.1.1 - 192.168.1.62 192.168.1.65 - 192.168.1.126 192.168.1.129 - 192.168.1.190 192.168.1.193 - 192.168.1.254

2)

172.16.0.0/16	New IP address: 11111111.11111111.11110000.00000000 255.255.240.0 172.16.0.0/20
2 ^ n >= 16 n = 4 16 – 4 = 12 2 ^ 12 = 4,096	
Range: 172.16.0.0 - 172.16.15.255 172.16.16.0 - 172.16.31.255 172.16.32.0 - 172.16.47.255 172.16.48.0 - 172.16.63.255 172.16.64.0 - 172.16.79.255	Usable range: 172.16.0.1 - 172.16.15.254 172.16.16.1 - 172.16.31. 254 172.16.32.1 - 172.16.47. 254 172.16.48.1 - 172.16.63. 254 172.16.64.1 - 172.16.79. 254

3)

10.0.0.0/8	New Ip address: 11111111.11111100.00000000.00000000 255.252.0.0 10.0.0.0/14
2 ^ n >= 64 n = 6 24 – 6 = 18 2 ^ 18 = 262,144	
Range: 10.0.0.0 – 10.3.255.255 10.4.0.0 – 10.6.255.255 10.7.0.0 – 10.10.255.255 10.11.0.0 – 10.14.255.255 10.15.0.0 – 10.18.255.255	Usable range: 10.0.0.1 – 10.3.255.254 10.4.0.1 – 10.6.255.254 10.7.0.1 – 10.10.255.254 10.11.0.1 – 10.14.255.254 10.15.0.1 – 10.18.255.254

4)

192.168.10.0/24	New Ip address: 11111111.11111111. 11111111.11100000 255.255.255.0 192.168.10.0/27
2 ^ n >= 8 n = 3 8 – 3 = 5 2 ^ 5 = 32	
Range: 192.168.10.0 – 192.168.10.31 192.168.10.32 – 192.168.10.63 192.168.10.64 – 192.168.10.95 192.168.10.96 – 192.168.10.127 192.168.10.128 – 192.168.10.159	Usable range: 192.168.10.1 – 192.168.10.30 192.168.10.33 – 192.168.10.62 192.168.10.65 – 192.168.10.94 192.168.10.97 – 192.168.10.126 192.168.10.129 – 192.168.10.158

5)

172.31.0.0/16	New IP address: 11111111.11111111.11111110.00000000 255.255.254.0 172.31.0.0/23
2 ^ n >= 128 n = 7 16 – 7 = 9 2 ^ 9 = 512	
Range: 172.31.0.0 – 172.31.1.255 172.31.2.0 – 172.31.3.255 172.31.4.0 – 172.31.5.255 172.31.6.0 – 172.31.7.255 172.31.8.0 – 172.31.9.255	Usable range: 172.31.0.1 – 172.31.1.254 172.31.2.1 – 172.31.3.254 172.31.4.1 – 172.31.5.254 172.31.6.1 – 172.31.7.254 172.31.8.1 – 172.31.9.254

6)

10.10.0.0/16	New IP address: 11111111.11111111.11111111.11000000 255.255.255.192 10.10.0.0/26
2 ^ n >= 1000 n = 10 16 – 10 = 6 2 ^ 6 = 64	
Range: 10.10.0.0 – 10.10.0.63 10.10.0.64 – 10.10.0.127 10.10.0.128 – 10.10.0.191 10.10.0.192 – 10.10.0.255 10.10.1.0 – 10.10.1.63	Usable range: 10.10.0.1 – 10.10.0.62 10.10.0.65 – 10.10.0.126 10.10.0.129 – 10.10.0.190 10.10.0.193 – 10.10.0.254 10.10.1.1 – 10.10.1.62

7)

192.168.0.0/16	New IP address: 11111111.11111111.11111111.11000000 255.255.255.192 192.168.0.0/26
2 ^ n >= 1024 n = 10 16 – 10 = 6 2 ^ 6 = 64	
Range: 192.168.0.0 – 192.168.0.63 192.168.0.64 – 192.168.0.127 192.168.0.128 – 192.168.0.191 192.168.0.192 – 192.168.0.255 192.168.1.0 – 192.168.1.63	Usable range: 192.168.0.1 – 192.168.0.62 192.168.0.65 – 192.168.0.126 192.168.0.129 – 192.168.0.190 192.168.0.193 – 192.168.0.254 192.168.1.1 – 192.168.1.62